A LONGITUDINAL STUDY OF THE DISTRIBUTIONAL EQUITY OF THE FLORIDA EDUCATION FINANCE PROGRAM

By

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Abstract of Dissertation Presented to the Graduate School
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The purpose of this study was to evaluate the horizontal equity and wealth neutrality of the Florida Education Finance Program between the years 1990 and 2000. The research questions addressed the shifts in the equity of the formula that occurred during these years, the nature of the relationship between funding per student and property wealth per student, and the policy changes that may have been associated with the observed changes in equity. A number of measures of univariate dispersion were employed to examine the horizontal equity of the funding formula, and regression measures were utilized to determine the wealth neutrality of the formula. Overall, the formula exhibited a slight trend toward increased horizontal equity and increased wealth neutrality, although the equity of the formula did not increase steadily during the years that were observed. The regression analysis found the relationship between funding per student and wealth per student to be quadratic in nature.

CHAPTER 1
INTRODUCTION

Introduction

The issue of equity has become increasingly prominent within the field of education finance in recent years. This is especially true in light of the nationwide trend toward school finance litigation that began in the 1970s.[1] Since then, the vast majority of states has enacted a variety of education finance reforms in an attempt to achieve greater equity among students.[2] In Florida, these reforms continue to occur on an annual basis as the Florida Education Finance Program is reviewed and revised each year by the Florida Legislature.[3]

The State of Florida is required by a state constitutional mandate to provide for a "uniform, efficient, safe, secure, and high quality system of free public schools."[4] The current mechanism for funding public education, the Florida Education Finance Program (FEFP), was established in 1973 in order to ensure an equitable distribution of state and local funding to all children attending public schools.[5] The development of the FEFP marked an important shift in the method of funding public education in the State of Florida by providing funds on the basis of pupil units and program costs rather than upon the number of teachers or classrooms.[6] Thus, instead of providing funding on the basis of teacher units, the FEFP based financial support on individual student participation in specific educational programs, each with a unique cost factor.[7]

The 1973 Florida Legislature had specific concerns regarding the equity of the existing funding formula, which was based upon the concept of a minimum foundation program.[8] Thus, a new funding mechanism was developed which attempted to provide a more equitable distribution. The new Florida Education Finance Program took into consideration certain disequalizing factors, such as the variations in local property tax bases among the school districts, the varying cost of living among the school districts, the varying cost of different educational programs and grade levels, and the varying costs of education due to the sparsity and dispersion of the student population.[9]

At the time of its adoption, the FEFP was generally regarded as "a national model for inter-district equity."[10] At the time, one education finance scholar noted that Florida's funding formula was "one of the most complex in the nation."[11] However, this funding formula has experienced a number of changes and adjustments since its inception, as policymakers continually strive to improve the equity of the distribution.[12] These specific changes in the components of the formula are discussed in Chapter 4. As a result of these yearly adjustments to the formula, the distributional equity of the FEFP often fluctuates from year to year.

The equity of an education funding formula can be measured in several ways. The education finance literature primarily refers to three types of equity: horizontal equity, vertical equity, and wealth neutrality, which is sometimes referred to as equality of opportunity. Although these concepts will be defined in more detail in later sections of this study, each term is briefly described herein. Horizontal equity implies that all students who are equal in their abilities and needs should receive equal amounts of funding.[13] Vertical equity recognizes the varying educational needs of students and

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suggests that students who are unequal in their abilities and needs consequently require unequal amounts of funding.[14] Wealth neutrality, another form of equity, describes the condition in which every student has an equal opportunity to receive funding from the state, regardless of such characteristics as property wealth, household income, or other measures of fiscal capacity.[15] Although each of these types of equity is important in itself, this study focuses only upon the horizontal equity and the wealth neutrality of the Florida Education Finance Program.

The importance of measuring the wealth neutrality of the formula must be viewed in light of certain landmark court cases in the area of education finance. In the case of *Serrano v. Priest*, the California Supreme Court upheld the standard of wealth neutrality.[16] This landmark decision required the State of California to eliminate the disparities in per pupil funding that were related to local property wealth.[17] Thus, *Serrano* established the legal concept of fiscal neutrality in education finance, which does not permit wealth-related disparities in education finance.[18] This concept was upheld once again when *Serrano* was revisited in light of *San Antonio v. Rodriguez*,[19] but this time the ruling was based upon the equal protection clause in the state constitution and not in the U.S. Constitution.[20] Another significant case was that of *Robinson v. Cahill*, in which the Supreme Court of New Jersey became the first state supreme court to find the education finance system unconstitutional solely on the grounds of the state constitution.[21] Together, *Serrano* and *Robinson* provide a solid basis for using wealth neutrality as a legitimate challenge to state education funding formulas.[22]

Although there have been a number of studies that addressed the equity of the FEFP in the past,[23] there are no recent studies that examine its equity over a period of time. Therefore, this study offers valuable insight in terms of the effects of different formula adjustments upon the equity of the distribution. This paper examines the equity of the FEFP for the years 1990-1991 through 1999-2000, both in terms of horizontal equity and in terms of wealth neutrality, and discusses certain formula adjustments that may be associated with the observed fluctuations in the equity of the distribution over time.

Statement of the Problem

When the FEFP was first established, the Florida Constitution contained a specific clause dedicated to public education: "Adequate provision shall be made by law for a uniform system of free public schools and for the establishment, maintenance and operation of institutions of higher learning and other public education programs that the needs of the people may require."[24] Following the passage of a constitutional amendment in November of 1998, this section of the state constitution was revised to mandate the provision of a "uniform, efficient, safe, secure, and high quality system of free public schools that allows students to obtain a high quality education."[25] The aforementioned constitutional amendment also declared education to be the "paramount duty of the state."[26] In addition, Florida Statutes require the provision of public education services across the state that are "substantially equal to those available to any similar student notwithstanding geographic differences and varying local economic factors."[27] This statutory provision implies that the distribution of funds to each school district must be equitable. While the Florida Education Finance Program contains a number of factors and adjustments that are intended to equalize funding among school districts, the formula often changes from year to year according to the will of the Florida Legislature. Thus, a longitudinal analysis of the equity of the FEFP is expected not only to reveal how equitable the formula is over time but also to provide useful information about which factors and adjustments have most significantly influenced the equity of the distribution in the past decade.

Purpose of the Study

The following research questions were addressed in this study:

1. Has the FEFP demonstrated horizontal equity between 1990-1991 and 1999-2000, and how has the horizontal equity of the formula changed during this time?
2. Has the FEFP demonstrated wealth neutrality between 1990-1991 and 1999-2000, in that the amount of funding received per student was not highly correlated with the property wealth per student, and is the relationship between these two variables linear, quadratic, or cubic in nature?[28]
3. Which policies or adjustments to the funding formula between 1990-1991 and 1999-2000 might have caused the horizontal equity and wealth neutrality to change during this time?

Significance of the Study

The State of Florida has one of the largest populations of school-aged children in the nation.[29] Therefore, the equity of Florida's system of education finance is a matter of great importance if only because of the vast number of students affected. Florida also provides a useful example of the minimum foundation program, which is the most commonly utilized method of funding education among the fifty states.[30] Thus, a study of the Florida Education Finance Program also serves as a case study of the foundation program as a funding distribution scheme.

The significance of this study also lies in the statutory and constitutional requirements in the State of Florida, which state that the availability of programs and services must be substantially equal among all students across the state. Furthermore, the requirement of the state to provide for equitable funding for public education is also set forth in the Florida Statutes, as discussed herein. Thus, if the FEFP distribution were to be deemed inequitable, this could represent a possible violation of the state constitution and of the laws of the State of Florida. If this were true, the citizens of Florida could potentially seek legal redress on the basis of this information. In addition, the analysis of the formula in terms of its effects upon the equity of the distribution could have important implications for future policymaking in the State of Florida. Therefore, this study was intended to provide an examination of the funding formula for public education in the State of Florida.

Definition of Terms

The following terms appear frequently in this study and therefore are defined in this chapter in order to clarify their meaning throughout the paper:

The Base Student Allocation is the amount of funding allocated by the Legislature for each student participating in the Florida Education Finance Program. The exact amount of the Base Student Allocation (BSA) is determined annually by the Legislature.[31]

The District Cost Differential is an index used to adjust the amount of funding for each of the 67 school districts according to variations in the cost of living. The Commissioner of Education is required by statute to annually compute district cost differentials by

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averaging each district's Florida Price Level Index for the most recent three years, thus alleviating the immediate impact of any sudden changes in the index.[32]

Equity has a number of different meanings depending upon the context in which it is used. The literature on education finance generally refers to equity as a "fair and just method of distributing resources" among children in the public school system.[33] However, there are many different types of equity, such as horizontal equity, vertical equity, and wealth neutrality. These types of equity are defined herein. This paper focuses primarily upon the horizontal equity among students in each Florida school district as well as the wealth neutrality of the funding distribution among students in each of the 67 school districts.

Horizontal equity has been defined as the equal treatment of equal students.[34] Thus, horizontal equity implies that students who are equal in their abilities and circumstances should be treated equally and thus should receive equal funding.[35]

Vertical equity emphasizes the fact that students, both individually and collectively, have varying educational needs.[36] Therefore, the concept of vertical equity addresses the need for public schools to provide unequal treatment for students who are unequal in ability or circumstances, such as students with special educational needs.[37]

Wealth neutrality addresses the extent to which the level of funding per student in each school district is dependent upon the amount of property wealth per student in each district.[38] Wealth neutrality is commonly measured by examining the statistical relationship between the levels of funding per student and the amount of property wealth per student in each school district.

The Florida Education Finance Program (FEFP) is the funding formula used by the State of Florida to finance public K-12 education. The purpose of the FEFP, as provided by Florida Statutes, is to "guarantee to each student in the Florida public educational system the availability of programs and services appropriate to his [or her] educational needs which are substantially equal to those available to any similar student notwithstanding geographic differences and varying local economic factors."[39] The most salient feature of the FEFP is the provision of funding based upon individual student participation in particular educational programs instead of the previous method, which based funding upon the numbers of teacher or classroom units. The calculation of FEFP funds begins with multiplying the number of full-time equivalent (FTE) students in each educational program by certain cost factors in order to yield the number of weighted FTEs. Weighted FTEs are then multiplied by a base student allocation, which is set annually by the Legislature, and by a district cost differential in order to determine the base funding from combined state and local FEFP funds. The cost factors for the various educational programs are determined by the Legislature and account for the relative cost differences among the FEFP programs.[40] A detailed description of the FEFP and its various components can be found in Chapter 2.

Full-time equivalent (FTE) is a concept utilized to count the number of students within a given district based upon the total number of contact hours per year. Thus, the FTE unit is intended to equal "one student in membership in one or more FEFP programs for a school year or its equivalent."[41] The State of Florida generally defines a full-time equivalent student in fourth through twelfth grades as receiving 900 hours of instruction within the school year. The figure for students in grades kindergarten through third grade

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is 720 hours of instruction per year.[42] The number of FTE students in each district is subsequently weighted according to the number of students in special programs, and this resulting figure is the number of weighted full-time equivalent (WFTE) students.

Program cost factors "serve to assure that each program receives its equitable share of funds in relation to its relative cost per student. . . . The cost per FTE student of each FEFP program has been used to produce an index of relative costs with the cost per FTE of Basic, Grades 4-8, established as the 1.000 base. In order to protect districts from rapid changes in program cost factors, the Legislature has generally adopted a three-year averaging method in computing cost factors."[43]

Public education refers to educational programs provided by the state and the 67 school districts (not including special districts) for grades pre-kindergarten through twelve. Thus, the term "public education" in this paper does not include adult education, higher education, or private education.

School districts are the 67 school districts in the State of Florida, which correspond with the geographic boundaries of the 67 counties within the state.[44]

Limitations and Delimitations

Data for this study were taken from several different publications by the State of Florida. The enrollment and funding data were obtained from the yearly *Statistical Review of Education in Florida*, published by the Florida Senate Budget Committee.[45] The property wealth data, measured in terms of school taxable value, were obtained from the annual reports of *Florida Property Valuations and Tax Data* produced by the Florida Department of Revenue.[46] Data were collected for each of the 67 school districts in

Florida for the years 1990-1991 through 1999-2000. While this study does address the equity of the funding distribution for the years specified, the results of this analysis contain no implications for the years that were not included in this study. Furthermore, while this paper examines the horizontal equity of the distribution and the wealth neutrality for students across the state, issues of vertical equity were not taken into consideration. The adequacy and the efficiency of the FEFP are other topics that remain outside the scope of this investigation.

Summary

The Florida Education Finance Program was established by the State of Florida for the purpose of achieving an equitable distribution of funding for public education. The funding formula is designed to allocate funds on the basis of a variety of weights and factors that reflect varying program costs and costs of living among the 67 school districts. In this way, the purpose of the formula is to provide both horizontal equity and wealth neutrality in the distribution of state funds for public education among the 67 school districts. The formula is adjusted annually by the Florida Legislature, and thus the equity of the distribution fluctuates somewhat from year to year. The purpose of this study was to examine the equity of the funding formula between the fiscal years 1990-1991 and 1999-2000 and to discuss which adjustments to the formula might have been associated with certain fluctuations in the equity of the distribution. The investigation focused upon the horizontal equity of the distribution as well as the wealth neutrality that was afforded by the distribution and attempted to determine the nature of the relationship between funding per student and property wealth per student.

Organization of the Study

Chapter 1 introduced the research questions that are addressed within this study. The following chapter, Chapter 2, contains a review of the literature pertaining to education finance and particularly to issues of equity. Chapter 3 presents a description of the methodology used in this study. The results of this research investigation are outlined in Chapter 4, and these results and their implications are further discussed in Chapter 5.

Notes

[1] For an extensive discussion of the history of education finance litigation, see R. Craig Wood and David C. Thompson, *Educational Finance Law: Constitutional Challenges to State Aid Plans—An Analysis of Strategies*, 2nd ed. (Topeka, KS: National Organization on Legal Problems of Education, 1996). See also Percy E. Burrup, Vern Brimley Jr., and Rulon R. Garfield, *Financing Education in a Climate of Change*, 7th ed., Boston: Allyn and Bacon, 1999; Kern Alexander and M. David Alexander, *American Public School Law*, 5th ed. (Belmont, CA: Wadsworth Publishing Company, 2001); and Kern Alexander and Richard G. Salmon, *Public School Finance*, Boston: Allyn and Bacon, 1995.

[2] Molly S. McUsic, "The Law's Role in the Distribution of Education: The Promises and Pitfalls of School Finance Litigation," in J. P. Heubert, *Law and School Reform* (New Haven: Yale University Press, 1999), 109.

[3] Laws of Florida (1973), chapter 345; Laws of Florida (1974), chapter 14; Laws of Florida (1974), chapter 227; Laws of Florida (1975), chapter 284; Laws of Florida (1976), chapter 259; Laws of Florida (1977), chapter 174; Laws of Florida (1977), chapter 329; Laws of Florida (1977), chapter 392; Laws of Florida (1977), chapter 430; Laws of Florida (1978), chapter 405; Laws of Florida (1978), chapter 416; Laws of Florida (1978), chapter 423; Laws of Florida (1978), chapter 432; Laws of Florida (1979), chapter 164; Laws of Florida (1979), chapter 190; Laws of Florida (1979), chapter 213; Laws of Florida (1979), chapter 222; Laws of Florida (1980), chapter 274; Laws of Florida (1980), chapter 381; Laws of Florida (1981), chapter 189; Laws of Florida (1983), chapter 204; Laws of Florida (1983), chapter 217; Laws of Florida (1983), chapter 324; Laws of Florida (1983), chapter 348; Laws of Florida (1984), chapter 336; Laws of Florida (1985), chapter 109; Laws of Florida (1985), chapter 238; Laws of Florida (1986), chapter 156; Laws of Florida (1987), chapter 212; Laws of Florida (1987), chapter 247; Laws of Florida (1987), chapter 329; Laws of Florida (1988), chapter 161; Laws of Florida (1988), chapter 557; Laws of Florida (1989), chapter 140; Laws of Florida (1989), chapter 278; Laws of Florida (1989), chapter 298; Laws of Florida (1989), chapter 302; Laws of

Florida (1989), chapter 381; Laws of Florida (1990), chapter 172; Laws of Florida (1990), chapter 240; Laws of Florida (1990), chapter 288; Laws of Florida (1990), chapter 356; Laws of Florida (1991), chapter 45; Laws of Florida (1991), chapter 105; Laws of Florida (1992), chapter 136; Laws of Florida (1993), chapter 198; Laws of Florida (1994), chapter 209; Laws of Florida (1994), chapter 232; Laws of Florida (1994), chapter 292; Laws of Florida (1995), chapter 147; Laws of Florida (1995), chapter 267; Laws of Florida (1995), chapter 269; Laws of Florida (1995), chapter 430; Laws of Florida (1996), chapter 369; Laws of Florida (1996), chapter 375; Laws of Florida (1996), chapter 420; Laws of Florida (1997), chapter 4; Laws of Florida (1997), chapter 153; Laws of Florida (1997), chapter 190; Laws of Florida (1997), chapter 246; Laws of Florida (1997), chapter 307; Laws of Florida (1997), chapter 380; Laws of Florida (1998), chapter 51; Laws of Florida (1998), chapter 58; Laws of Florida (1998), chapter 228; Laws of Florida (1998), chapter 281; Laws of Florida (1998), chapter 302; Laws of Florida (1998), chapter 309; Laws of Florida (1999), chapter 398; Laws of Florida (2000), chapter 166.

[4] Florida Constitution, art. 10, sec. 1.

[5] Laws of Florida (1973), ch. 345.

[6] Florida Department of Education, *2000-2001 Funding for Florida School Districts* (Tallahassee, FL: Florida Department of Education, 2000), 1.

[7] Office of Program Policy Analysis and Government Accountability, "Florida's Education Funding System." Report no. 95-50 (Tallahassee, 1996), 2.

[8] Roe L. Johns, *The Evolution of the Equalization of Educational Opportunity in Florida: 1926 to 1976* (Gainesville, FL: Institute for Educational Finance, 1976), 68.

[9] Laws of Florida (1973), ch. 345, sec. 2. See also Florida Department of Education, *1999-2000 Funding for Florida School Districts* (Tallahassee, 1999), 1.

[10] Yasser Nakib and Carolyn D. Herrington, "The Political Economy of K-12 Education Finance: the Context of a Fast Growing Large State," *Journal of Education Finance* 23 (1998): 352.

[11] Thomas H. Jones, *Introduction to School Finance: Technique and Social Policy* (New York: Macmillan Publishing Company, 1985), 149.

[12] For example, adjustments such as the hold harmless adjustment and the disparity compression adjustment were added to the formula, while the number of program cost factors used in the formula has significantly decreased. For a detailed summary of adjustments in the Florida Education Finance Program between 1990-1991 and 1999-2000, see Florida Senate Budget Committee, *A Statistical Review of Education in Florida, 1999-2000* (Tallahassee, 1999).

[13] Robert Berne and Leanna Stiefel, *The Measurement of Equity in School Finance* (Baltimore: Johns Hopkins University Press, 1984), 13.

[14] Ibid.

[15] Berne and Stiefel distinguish between characteristics of students that form a legitimate or illegitimate basis for differences in funding levels. For example, providing additional funding for handicapped students is legitimate, while allocating additional funds to students who live in districts with high levels of property wealth would be an illegitimate practice. See Berne and Stiefel, 14-17.

[16] *Serrano v. Priest*, 487 P. 2d 1241 (Cal. 1971). See also R. Craig Wood and David C. Thompson, *Educational Finance Law: Constitutional Challenges to State Aid Plans—An Analysis of Strategies*, 2nd ed. (Topeka, KS: National Organization on Legal Problems of Education, 1996), 57.

[17] McUsic, 111.

[18] Percy E. Burrup, Vern Brimley Jr., and Rulon R. Garfield, *Financing Education in a Climate of Change*, 7th ed. (Boston: Allyn and Bacon, 1999), 63.

[19] *San Antonio Independent School Dist. v. Rodriguez*, 411 U.S. 1, 93 S. Ct. 1278, *reh'g denied*, 411 U.S. 959 (1973).

[20] *Serrano v. Priest*, 557 P.2d 939. See also Wood and Thompson, 58.

[21] *Robinson v. Cahill*, 287 A.2d 187 (N.J. Super L. 1972), *aff'd,* 303 A.2d 273 (NJ 1973).

[22] Wood and Thompson, 72.

[23] David Vaughan, "The Impact of Florida's 1973 School Finance Reform on Poor and Minority Children," in Robert Brischetto (ed.), *Minorities, the Poor, and School Finance Reform* (Washington: National Institute of Education, 1979); Stephen J. Carroll and Rolla E. Park, *The Search for Equity in School Finance* (Cambridge, MA: The Ballinger Publishing Co., 1983); Kern Alexander and Lee Shiver, "Equalization Among Florida School Districts," *Journal of Education Finance* 9 (1983): 55-62; J. Michael O'Loughlin, R. Craig Wood, and David S. Honeyman, *A Study of the Effects of the Sparsity Supplement on the Equity of the Florida Education Finance Program* (Gainesville, FL: UCEA Center for Education Finance, 1992); Jeffrey A. Maiden and R. Craig Wood, "An Examination of the Discretionary Elements of the Florida Education Finance Program," *Journal of Education Finance* 21 (1995): 271-290.

[24] Florida Constitution, art.10, sec. 1.

[25] Ibid.

[26] Ibid.

[27] Florida Statutes, sec. 236.012, art. 1.

[28] For a discussion of linear, quadratic, and cubic slope estimation in the measurement of equity, see Robert Berne and Leanna Stiefel, *The Measurement of Equity in School Finance* (Baltimore, MD: Johns Hopkins University Press, 1984), 29.

[29] Jeffrey Maiden and R. Craig Wood, "An Examination of the Discretionary Elements of the Florida Education Finance Program," *Journal of Education Finance* 21 (1995): 273.

[30] Steven D. Gold, David M. Smith, and Stephen B. Lawton, *Public School Finance Programs of the United States and Canada 1993-94* (Albany, NY: Center for the Study of States, 1995), 24.

[31] Florida Department of Education, *1999-2000 Funding for Florida School Districts* (Tallahassee, 1999).

[32] Florida Statutes, sec. 236.081, art. 2.

[33] David C. Thompson, R. Craig Wood, and David S. Honeyman, *Fiscal Leadership for Schools: Concepts and Practice* (New York: Longman, 1994), 56-57.

[34] Percy E. Burrup, Vern Brimley Jr., and Rulon R. Garfield, *Financing Education in a Climate of Change* (Boston: Allyn and Bacon, 1999).

[35] R. Craig Wood and David C. Thompson, *Education Finance Law: Constitutional Challenges to State Aid Plans – An Analysis of Strategies,* 2nd ed. (Topeka, KS: NOLPE, 1996), 18.

[36] Burrup, Brimley, and Garfield, 63.

[37] Wood and Thompson, 18.

[38] Robert Berne and Leanna Stiefel, *The Measurement of Equity in School Finance* (Baltimore, MD: The Johns Hopkins University Press, 1984), 26.

[39] Florida Statutes, sec. 236.012, art. 1.

[40] Florida Department of Education, *1999-2000 Funding for Florida School Districts* (Tallahassee, 1999), 1.

[41] Florida Department of Education, *1999-2000 Funding for Florida School Districts* (Tallahassee, 1999), 9.

[42] Florida Department of Education, *1999-2000 Funding for Florida School Districts* (Tallahassee, 1999), 9.

[43] Florida Department of Education, *1999-2000 Funding for Florida School Districts* (Tallahassee, 1999), 11.

[44] Florida Department of Education, *1999-2000 Funding for Florida School Districts* (Tallahassee, 1999), 2.

[45] Florida Senate Budget Committee, *A Statistical Review of Education in Florida, 1999-2000 Edition*, Tallahassee, 1999; Florida Senate Appropriations Committee, *A Statistical Review of Education in Florida, 2000-2001 Edition*, Tallahassee, 2000.

[46] Florida Department of Revenue, *Florida Ad Valorem Valuations and Tax Data* (Tallahassee, 1990); Florida Department of Revenue, *Florida Ad Valorem Valuations and Tax Data* (Tallahassee, 1991); Florida Department of Revenue, *Florida Ad Valorem Valuations and Tax Data* (Tallahassee, 1992); Florida Department of Revenue, *Florida Ad Valorem Valuations and Tax Data* (Tallahassee, 1993); Florida Department of Revenue, *Florida Ad Valorem Valuations and Tax Data* (Tallahassee, 1994); Florida Department of Revenue, *Florida Property Valuations and Tax Data* (Tallahassee, 1995); Florida Department of Revenue, *Florida Property Valuations and Tax Data* (Tallahassee, 1996); Florida Department of Revenue, *Florida Property Valuations and Tax Data* (Tallahassee, 1997); Florida Department of Revenue, *Florida Property Valuations and Tax Data* (Tallahassee, 1998); Florida Department of Revenue, *Florida Property Valuations and Tax Data* (Tallahassee, 1999).

CHAPTER 2
REVIEW OF THE LITERATURE

Introduction

The purpose of this study was to examine the equity of the Florida Education Finance Program over a period of 10 years in light of established definitions of equity and with reference to the specific political context of the State of Florida. This chapter contains a review of the pertinent literature, including the literature on education finance; the different types of funding formulas for public education; court cases involving the equity of education funding systems; and a detailed description of the Florida Education Finance Program.

History of Fiscal Support for Public Education

The system of public education that exists in the United States today has evolved gradually over two centuries. The roles of the federal, state, and local levels of government in supporting and governing education have varied considerably during this time. The current system is highly decentralized, with the federal government playing a relatively small role in the financing and governance of public schools. This structure can be traced to the Tenth Amendment to the United States Constitution, which provides: "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people."[1] Since education is not specifically mentioned in the Constitution as a duty of the federal government, the responsibility for the public provision of education consequently rests with the state governments.

While education was certainly an important issue to the framers of the Constitution, there were several factors that contributed to the omission of education from the federal government's responsibilities. For example, schools had already been established in each of the thirteen colonies, and some of the colonies had already passed legislation that required education, including Massachusetts, Connecticut, Maine, New Hampshire, and Vermont.[2] There was also some concern among the framers that the inclusion of education as a federal responsibility might create so much controversy that consensus would become impossible.[3]

Although the Constitution does not specifically mention education as a federal responsibility, the federal government has always considered education to be an important national interest. Even before the Constitution was adopted, the Continental Congress passed two laws that expressed the importance of education. The Land Ordinance of 1785 reserved the sixteenth section of each township for the maintenance of public schools.[4] Two years later, the Northwest Ordinance of 1787 required every state to have an education provision in its law and declared that "[r]eligion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged."[5] Indeed, these two ordinances "marked the beginning of a formal federal involvement" in education.[6] However, the federal government has always taken an indirect role in shaping the public education system, mostly by providing targeted funding for specific programs, by shaping education policy through legislation, and through judicial decisions handed down by federal courts.[7]

Despite the interest of the federal government in education and the states' responsibility for education by virtue of the Tenth Amendment, public education was largely the result of local initiative and support for much of the nation's early history. In colonial America, the first education laws required local communities to appoint and pay teachers with funds that were locally generated.[8] However, these schools were initially more like private schools that were established primarily for the purpose of religious instruction. The movement toward public schools, then referred to as "common schools," did not take place until the early Nineteenth Century.[9] Thus, the system of education in the United States evolved in such a way that public schools were funded primarily by local tax revenue throughout the Nineteenth Century and much of the Twentieth Century.[10] Education was controlled almost exclusively by local governments until the beginning of the Nineteenth Century, when state governments began to exert more of an influence over educational matters.[11] This funding structure had a profound impact upon the development of public education in the United States.

Although state support of public education began in the early part of the Nineteenth Century, state revenues did not become a significant source of funding for public education until the latter part of the Twentieth Century.[12] As state funding for education became more established, and as permanent sources of state funding were developed, many questions arose concerning the most appropriate distribution of these resources among school districts.[13] The states became more concerned with issues pertaining to the distribution of funds for education across school districts, and since then, the states have struggled to adjust for constantly changing social, economic, and political factors.[14] Thus began the ongoing effort to devise funding formulas that could achieve a fair and equitable distribution of funds for education. The following section describes the evolution of the concept of equity in education finance.

Theory of Equity in Education Finance

The definition of equity as applied to education finance is a complex and multifaceted concept that is rooted in the traditions of philosophy, politics, and economics. Discussions of equity and of "distributive justice" have been traced as far back as ancient Greek society.[15] The broadest definition of equity includes concepts of justice, equality, humanity, morality, and right.[16] The concept of equity, in essence, implies a fair or just "distribution of effects and effort among different groups in society."[17] However, equity extends beyond mere equality in that it also requires the unequal treatment of unequals. In this respect, equity has been defined as "the precondition of equality where the hope for equal opportunities requires unequal inputs."[18] Within the context of public education, the notion of equity has roots in political principles such as "common weal and good conscience interpretations of the courts in reference to constitutions and states of the various states and the federal government."[19] Indeed, the definition of equity poses many definitional challenges in the arena of education finance, especially in terms of establishing the theoretical basis and practical implications of equity.[20]

Traditionally, the concept of equity in education finance has been expressed in terms of the need to provide educational inputs and resources in a manner that maximizes the equality of educational opportunity.[21] Indeed, an important principle of equity in education finance is that there should be a minimal discrepancy between the educational opportunity that is received by all students, regardless of individual student characteristics and circumstances.[22] Although the degree of educational opportunity is very difficult to quantify, the most reliable and appropriate measure that exists today is that of expenditures per student.[23]

The literature concerning education finance has focused a great deal of research upon issues of equity and fairness. The first scholar to examine the equity of funding for public schools was Ellwood Cubberley, who asserted that "all children of the state are equally important and are entitled to have the same advantages."[24] In his research on the financing of public schools, Cubberley noted that changes in the distribution of population and wealth in the United States had produced greater inequities in education finance. Cubberley also argued that the state must attempt to remedy these inequities by providing an equal opportunity for all students to obtain the benefits of an education.[25]

Although Cubberley argued that the state must ensure that all students receive a certain minimum of educational resources and services, he also believed that the state should not necessarily hold all districts to this minimum. In fact, Cubberley encouraged local communities to generate as much revenue as possible for their own schools, so that they might raise their levels of funding as far above the legal minimum as possible.[26] In addition, Cubberley asserted that the state should provide greater incentives for districts to generate additional revenue for public education.[27] Cubberley wrote:

> The duty of the state is to secure for all as high a minimum of good instruction as is possible, but not to reduce all to this minimum; to equalize the advantages to all as nearly as can be done with the resources at hand; to place a premium on those local efforts which will enable communities to rise above the legal minimum as far as possible; and to encourage communities to extend their educational energies to new and desirable undertakings.[28]

In this way, individual school districts would be required to provide a certain minimum amount of funding per student, but each district would be permitted to raise additional funds for education without any limits imposed by the state.

Cubberley also established the theoretical foundation for the provision of funds based upon the number of students rather than upon the ability to pay taxes. Cubberley argued that the distribution of state funds according to the amount of taxes paid by each school district "would produce very unequal and very unjust results."[29] In his research, Cubberley concluded that distributing taxes on the basis of average daily attendance was a "much greater force in the direction of equalization of the burdens and the advantages of education than would be the case if the distribution were made on the basis of taxes paid."[30] Thus, Cubberley paved the way for funding public schools based upon the number of students in attendance rather than upon the ability to pay taxes.

The concept of equity in education finance was further developed by George Strayer and Robert Haig, who introduced the concept of the minimum foundation program.[31] Strayer and Haig asserted that such a program was the logical consequence of an equitable system of funding education. The minimum foundation program would ensure that each student would receive a guaranteed minimum amount of funding from the state. In addition, these funds would be generated from state taxes, and the residents of the state would be taxed according to their ability to pay taxes, thus providing a fairer distribution of tax revenue by transferring funds from wealthier districts to poorer districts. Strayer and Haig described a perfectly equitable funding formula as one that: (1) ensures equal educational facilities to every child in the state, (2) provides for uniform tax effort throughout the state, (3) ensures that tax effort is related to the ability to pay, and (4) provides an adequate minimum education to all students, but does not hinder the ability of school districts to enhance educational expenditures with local funds.[32]

Strayer and Haig advocated an education finance program that was based upon three fundamental principles, which were somewhat revolutionary at that time.[33] The first principle was that the state should provide all children with a minimum level of education that is uniformly available. In addition, Strayer and Haig argued that the state must consider the ability of the local school districts to generate tax revenue for public schools. Finally, the state should administer the distribution of funds for public education through its department of education. Most importantly, the foundation program that was proposed by Strayer and Haig was revolutionary because it suggested that state funds would provide the foundation for education finance rather than merely providing a supplement to local funds.[34] This notion was highly controversial because education had been financed predominantly by local tax revenues up until that time.

Harlan Updegraff further built upon the concept of equity in education finance by recommending that the state provide supplemental funds to poorer school districts.[35] For this reason, Updegraff worked extensively to develop a system of measuring the relative ability of each school district to support public education. This system would indicate which school districts were most in need of supplemental funding. Updegraff was also among the first to advocate central or state support of public schools, primarily because of the great variation among school districts in their ability to support public education.[36] For Updegraff, a primary purpose of state funding for public education was "to guarantee to each child, irrespective of where [the child] happens to live, equal opportunity to that of any other child for the education which will best fit him for life."[37]

Updegraff also drew an important distinction between the pupil unit of funding and the teacher unit of funding. Historically, public school districts had received funding based upon the number of teachers employed. While this method of funding public education does reflect the cost of teacher salaries with a fair amount of accuracy, Updegraff noted that the teacher unit of funding does not provide enough of an incentive for school districts to ensure good attendance. This is true simply because the funds are not connected in any way with student attendance. Thus, Updegraff recommended at least combining the teacher unit of funding with the pupil unit of funding, if not relying solely upon the pupil unit of funding.[38]

Paul Mort, who studied under Strayer, extended these ideas and also further advanced the concept of per-pupil funding. Mort especially emphasized the responsibility of the state to provide a minimum amount of funding for public education: "it seems to be generally accepted that the state as a governmental unit has a definite responsibility for seeing that some minimum of educational opportunity is offered to all children."[39] In light of the fact that local school revenues at that time were obtained primarily through local property taxes, Mort advocated the use of the total value of taxable property as a measure of the relative ability of each school district to finance the public schools, a measure that is still widely used today.[40] Mort also built upon the concept of the minimum foundation program and extolled its usefulness in establishing the fiscal relationships between the states and the local school districts.[41] In addition, Mort supported the use of state aid for public education as a method of redistributing wealth from the richer school districts to the poorer school districts.[42]

Another significant contribution that Mort made to the study of education finance was the definition of specific criteria for a satisfactory equalization program.[43] Mort supported the notion that an equalization program should include educational activities that are found in most or all of the school districts. Mort also believed that the state should take into consideration those cost factors that are not within the control of the local school districts, such as transportation costs in sparsely populated areas. Finally, Mort suggested that educational programs beyond the minimum should be included in the equalization program for certain school districts with special needs.[44]

Unlike Mort, Henry C. Morrison became known for his support of a full state funding model in which school districts would be eliminated and funds would come from state revenues rather than local property taxes.[45] According to Morrison, these state revenues could be derived from a combination of sources, such as general property taxes levied by the state, state income taxes, corporation taxes, and income from state school lands or invested school funds.[46] Morrison was particularly concerned with the question of whether state funds could be so distributed among districts of varying wealth as to establish a system of fully equivalent schools while at the same time ensuring that the burden of taxation is equal among all school districts.[47] Morrison also asserted that public education is inherently a state purpose,[48] and he believed that public education would be most efficiently managed at the state level.[49] For all of these reasons, Morrison advocated the full state funding model as a means of equalizing education finance among school districts of varying property wealth.

The full state funding model proposed by Morrison would theoretically accomplish two important goals: it would equalize the tax burden among school districts by combining all tax revenue throughout the state, and it would also distribute this revenue using a formula that was both less complicated and more fair.[50] However, Morrison did not find widespread support for his ideas, mostly because he opposed local control of education and advocated the income tax as a means of financing education.[51] Still, the model of full state funding and of state responsibility for education did achieve greater acceptance in later years.[52]

Since these initial concepts were first developed, the theory of equity in education finance has continued to evolve as the states have refined the distribution formulas over the years. The basic principles of equity that were introduced by Cubberley, Strayer, Haig, Updegraff, Mort, and Morrison have been incorporated into state funding formulas in various combinations and with some new variations. The following section describes the various types of education funding formulas, many of which continue to be used by the states today.

Education Funding Formulas

Throughout the Twentieth Century, various types of education funding formulas have been developed and implemented across the fifty states.[53] The overarching purpose of funding formulas in education finance is to ensure a fair and equitable distribution of resources, and they have become increasingly complex as the states continually attempt to improve the equity of educational funding distributions.[54] Each type of funding formula has distinct advantages and disadvantages, as discussed herein.

The first type of funding formula that was introduced was the flat grant program. Flat grant programs represent the most basic type of funding mechanism and provide an equal amount of funding per student from the state, which is to be supplemented by local revenues. However, such programs do not take into consideration the ability of the local school districts to pay for educational services.[55] These grants were originally provided by the state as a form of relief for taxpayers, not as a means of equalizing educational expenditures.[56] This type of arrangement places an unfair burden on the less wealthy districts, especially when the amount of the flat grant does not cover the full costs of educational programs and services.[57] This is because flat grants do not address the differences between the poorest and wealthiest school districts.[58] Despite these problems, flat grants were still widely used at the beginning of the Twentieth Century.[59]

As the states developed a stronger interest in equalizing the distribution of funds, a number of equalization plans were introduced in order to accomplish this goal. The underlying philosophy of equalization plans was that the state should provide higher levels of revenue to the districts with the least amount of wealth. The two major types of equalization plans are minimum foundation programs and resource accessibility plans.

The minimum foundation program, which was first developed by Strayer and Haig, does take into consideration the ability of each school district to pay for a minimum educational program.[60] In general, the minimum foundation plan "strives to promote fiscal equity throughout the state, with state and local funding combined to guarantee every child in the state a minimally acceptable level of education."[61] Like the flat grant, the foundation program is rooted in the philosophy of minimum provision: both are "intended to assure every pupil the minimum level of per-pupil expenditure deemed necessary to provide an 'adequate' level of education."[62] Indeed, the foundation program recognizes that "students throughout each state, regardless of where they live, should be entitled to participate and receive maximum benefits from a program of education designed to meet their needs."[63] However, foundation programs are also different from flat grants in the way that the formulas consider the school districts' ability to pay taxes:

> Foundation programs incorporate a measure of local wealth (W_i), and introduce a local fiscal capacity element not found in the flat grant programs. This establishes an inverse relationship between a district's ability to pay and the amount of state foundation aid.[64]

The foundation program has been referred to as "the most commonly acceptable method of state school financing."[65] In fact, forty of the fifty states currently utilize a foundation program to distribute funds for education.[66]

Foundation programs have received widespread support because of two primary factors. First, the foundation program focuses on a minimum level of funding, and second, it still allows for some local control over educational expenditures.[67] Although the foundation program works reasonably well and is utilized by the vast majority of the states, it also has certain weaknesses and potential inequalities.[68] The minimum foundation concept is based upon the ability of local school districts to make additional contributions above the minimum. However, discretionary local millage can also create serious inequities, since wealthy school districts are able to contribute far more than the poorer school districts. For this reason, states may elect to limit the amount of discretionary millage, which still allows districts to have some discretion but also reduces the disparity among school districts. This type of arrangement represents a compromise between the goals of encouraging local control and providing equal educational opportunity across the state.[69]

Research clearly suggests that foundation programs substantially reduce the amount of inequity among school districts as compared to a purely local system of finance.[70] Indeed, education finance systems that are based upon local wealth "have produced inequities and inadequacies in educational resources affecting the quality of children's lives and the economic and social futures of economically disadvantaged communities."[71] This is especially true for the students who live in the poorest areas of the state. For this reason, a heavy reliance on local property tax as a revenue source for education can produce serious inequities. These disparities are caused by the uneven distribution of property wealth among school districts.[72]

McUsic argues that inequity in education finance is partially due to the longstanding practice of organizing and funding school districts on a geographical basis, which tends to segregate students by race and class, thus perpetuating the preexisting inequalities that exist among the student population.[73] Reliance upon local property taxes for funding education causes inequities among students because there are families who cannot afford to live in neighborhoods with high levels of property wealth relative to the number of public school students.[74] Furthermore, such policies that rely upon local wealth may also "make many already disadvantaged children the recipients of an inadequately funded education that compounds their other disadvantages."[75] This is why state funding formulas attempt to counteract these disparities by providing additional funding in some form to the poorest districts: "In an effort to address funding disparities, all state governments make supplemental appropriations to local school districts."[76]

Thus, many states have attempted to minimize the relationship between property wealth and funding for education by "capping the property tax rate, forcing districts to tax at a uniform rate, capping the amount that can be spent in wealthy school districts, and increasing statewide taxes such as the income tax, sales tax, and lottery."[77] These methods of altering the distribution of funds result in greater equalization of educational opportunity throughout the state.

Although resource accessibility plans share the same goal of equalizing revenue distribution, the method of achieving greater equalization under resource accessibility plans is quite different from that of the minimum foundation program. Resource accessibility plans focus more on the capability of school districts to generate funds, and thus these formulas seek to equalize the resources available to each district. Many resource accessibility programs use percentage equalizing methods in order to guarantee school districts "a constant percent of budget from the state based on local capability to pay."[78] Other types of resource accessibility plans include guaranteed tax base, guaranteed tax yield, and district power equalization. Although resource accessibility plans have made a valuable contribution to the pursuit of equity, they have not been very popular among the states.[79]

Another type of funding formula involves full state funding grants, which place full responsibility for financing education upon the state. This is often accomplished through a statewide tax that is "apportioned equally without regard to location or wealth."[80] The full state funding formula incorporates the principle of wealth neutrality by eliminating the relationship between local property wealth and funding for education. However, Hawaii was the only state to ever adopt the full state funding model, and this is only because of its single school district structure.

While funding formulas do provide a helpful framework for the distribution of funds for public education, there is often a need for the state to make certain adjustments to the formula. Most of these adjustments are intended to improve the equity of the formula either by addressing the unequal needs of students across the state or by recognizing the unequal costs of providing education services in different areas of the state. The two fundamental types of formula adjustments are those that address need equalization or cost equalization.[81]

Need equalization occurs when the state takes into consideration the varying needs of individual students as well as the varying needs of different student populations. Through need equalization, the state recognizes that all children are not equal in terms of their individual abilities and socioeconomic status and thus have differing levels of need.[82] These varying needs are incorporated into the state education finance system through certain formula adjustments intended to provide need equalization. While there are many public school programs that are funded through such formula adjustments, need equalization has typically focused on three specific areas of need: special education, bilingual education, and compensatory education.[83]

One common method of adjusting for the varying needs of students is through pupil weighting schemes, which apply different program cost factors for students in certain groups. For example, a student in a regular education program might be assigned a cost factor of 1.0, while a student in a special education program would receive a cost factor greater than 1.0, and a part-time student might receive a cost factor less than 1.0.[84] Pupil weighting schemes have been favored by many states as a means of accounting for differences among student groups.[85] Although the use of weighting schemes varies widely among the states, at least fourteen states utilize weighting methods in order to fund compensatory education,[86] and at least eighteen provide funding for special education using pupil weighting schemes.[87] One distinctive advantage of this approach is that pupil weighting tends to reduce the number of categorical grants and also usually simplifies the state education finance formula. Pupil weighting procedures are used by most states in order to address the varying educational costs associated with individual student characteristics as well as local economic differences. In this way, pupil-weighting schemes are intended to provide a more accurate estimate of the educational needs of each local school district.[88]

Cost equalization is another method of equalizing educational expenditures. There are a host of factors that create wide variation in the cost of public education among school districts. For example, formula adjustments are often needed to compensate for the economies of scale that make the provision of educational services more expensive in districts that are very large or very small.[89] Another common formula adjustment stems from the varying cost of living in different geographic areas of any given state. By using a price index or "market basket" approach, many states take this into consideration by providing additional funds to districts in which the cost of living is very high.[90] Another form of cost equalization is the hold harmless adjustment, which protects school districts with student populations that are declining or growing more slowly than expected. In this way, hold harmless adjustments "generally override the normal operation of an aid formula to provide certain school districts with more aid than they would otherwise receive."[91] Some states also elect to adjust funding to local school districts based upon the sparsity of the population in order to compensate for any distorted economies of scale. As some education finance scholars have argued: "In many states, there are areas so sparsely settled that it is not possible to establish schools of economical size. The state should make allowance for the necessary costs of such schools in its program of state support."[92] Thus, in addition to making adjustments for the varying needs of individual students, the state also provides formula adjustments in order to compensate for the varying costs of education and the differing economies of scale among school districts.

The preceding section discussed the various types of education funding formulas and how they evolved over time. With this knowledge of the origins and the purposes of education funding formulas, it is possible to evaluate the relative equity provided by each type of funding formula. The following section will address the equity of education funding formulas.

Equity of Education Funding Formulas

The concept of equity can be defined and delineated in several different ways. One of the primary distinctions between the different types of equity is framed in terms of horizontal equity and vertical equity. Horizontal equity has been defined as the equal treatment of equal students.[93] This concept is based upon the fundamental assumption that all students are equal and therefore should be treated equally. Horizontal equity is measured in terms of the dispersion in the amount of funding received per student among all school districts. A distribution that has perfect horizontal equity would be one in which there was no dispersion; thus, it would require that all students in all districts receive exactly the same amount of funding.[94] However appealing the concept of

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horizontal equity may be on the surface level, the truth is that all students are not alike. In fact, there is ample evidence contrary to the assumption that all students are substantially equal.[95] Thus, it is most appropriate to utilize the concept of horizontal equity within subgroups of students who are deemed equal in ability and circumstances.

By contrast, the concept of vertical equity emphasizes the different needs of individual students as well as different groups of students. Therefore, the condition of vertical equity requires that students with unequal needs be treated unequally.[96] Indeed, there has been a gradual acknowledgment through the use of more complex funding formulas that the cost of a public education varies among students.[97] According to Berne and Stiefel, legitimate differences among students include varying individual ability levels, varying economic conditions in different geographic areas, or varying costs of different instructional programs.[98] Formula adjustments for need equalization and cost equalization, as discussed previously, fall within the category of vertical adjustments, because these adjustments recognize the differences between individual students with various needs and among school districts with varying circumstances and populations.

Although both horizontal equity and vertical equity are important considerations when evaluating a funding distribution scheme, it should be noted that there is an "inherent conflict" between horizontal and vertical equity, because neither one can be perfectly achieved without interfering with the other.[99] This underlying tension leads to a considerable degree of controversy over how to achieve the most equitable distribution of funds that will treat all students equally but will also recognize the special educational needs that exist within the state.[100]

Wealth neutrality, which is also commonly referred to as equality of educational opportunity, is another common concern of education finance experts. Berne and Stiefel define equity of opportunity (or wealth neutrality) as a condition in which there is no relationship between the amount of funding received per student and a variety of factors, including property wealth per pupil, household income, fiscal capacity, or gender. In other words, this principle of equity requires that education "should not be a function of local wealth."[101] This condition, described by Berne and Stiefel as equity of opportunity, was referred to in the present study as wealth neutrality. The following section discusses the various methods that are utilized in the measurement of equity in education finance.

Issues in the Measurement of Equity

There are several issues to consider in the measurement of equity in education finance. One important issue pertaining to the measurement of equity concerns the unit of analysis. Berne and Stiefel discuss the relative advantages and disadvantages of using the district unit of analysis as compared to the pupil unit of analysis. Essentially, the district unit of analysis weighs each district in the state equally, without regard for the size of the district or the number of pupils within that district. Alternatively, the pupil unit of analysis incorporates the population of each school district, thus weighing the larger districts more heavily.[102]

It is also important to note the challenge of pursuing all forms of equity simultaneously. Horizontal equity, vertical equity, and wealth neutrality in some ways conflict with each other, and thus it is important to be aware of how each one affects the others. For example, efforts to achieve greater vertical equity – whether among students or among districts – can have a negative effect on measures of horizontal equity. Thus, researchers in education finance must take into consideration that some differences in educational expenditures are in fact desirable, particularly in states where equalization programs are in effect.[103]

Another issue concerns the method of measuring the wealth neutrality of a funding distribution. Most often, this concept is measured by correlating the amount of funding per pupil with the amount of wealth per pupil. The most common measure of wealth per pupil consists of the total assessed valuation of real property per pupil, presumably since property wealth is the primary source of local funds for education. However, some controversy has emerged over the appropriateness of this measure. The primary objection to the use of real property as a measure of wealth is the trend toward investment of wealth in other forms of property and assets that are not taxed as easily.[104] However, real property continues to be used by most states as a means of comparing the relatively wealth of local school districts.

Yet another dilemma in the measurement of wealth neutrality is whether to measure this concept by using the elasticity of the relationship rather than the slope. Although both statistics measure the magnitude of the relationship, the elasticity measures magnitude "in terms of percentage changes rather than in the absolute unit changes reflected in the slope."[105] Another issue involves the distinction between the slope and the correlation. Berne and Stiefel describe the differences between the use of measures of correlation and measures of slope, noting that the correlation can sometimes be misleading. In certain cases, a high simple correlation may give the impression of an inequitable distribution, even though the magnitude of the relationship is very small, resulting in a low simple slope and simple elasticity.[106] This happens, for example, when the variation in funding per student is relatively low as compared to the variation in property wealth per student.

> Per-pupil property values may be an excellent explanatory variable for the variation that exists in per-pupil objects, thus resulting in a high simple correlation, indicating a good fit. However, if the variation in per-pupil objects is low in relation to the variation in per-pupil property values, the magnitude of the effect of either a one-unit or a 1 percent change in per-pupil property values on per-pupil objects can be low. This leads to a relatively low simple slope and simple elasticity.[107]

Thus, even though funding per pupil may have a strong correlation with property wealth per pupil, this relationship may be less troubling if the magnitude of the relationship is quite small.

Furthermore, Berne and Stiefel expound upon the usefulness of both the correlation and the slope or elasticity, depending upon the purpose of the researcher: "the choice between the correlation versus the slopes and elasticities depends on which aspect of the relationship is critical: the degree of interrelatedness (correlation) or the magnitude of the relationship (slope and elasticity)."[108] Although the correlation is still more widely used than the slope or elasticity, there is nothing to prevent the use of both types of measures simultaneously.

However, there has been some criticism about the appropriateness of the correlation between funding per student and wealth per student when measuring wealth neutrality. Michelson defines an equalized education finance system as one that "brings the distribution of total funds closer to equal dollars per pupil than it would be if no such program existed."[109] According to this definition, the correlation between measures of wealth and of funding per student is not always the most appropriate measure of equalization:

> It is common to correlate school funds per pupil with measures of wealth… If the standard of equal dollars per pupil were met, the correlation between wealth and school revenues would be zero. Otherwise, the correlation is the wrong measure, and many programs which are equalizing according to the definition above will not be recognized as such by this measure.[110]

Therefore, Michelson argues that the slope is a more appropriate measure of equalization, because the strength of the relationship – the correlation – is somewhat irrelevant if the slope of the relationship is close to zero:

> The correct measure of equalization should utilize the slope of the summary line, not the closeness of the points around it… The correct comparison should be whether the slope of the total funds is closer to zero than the slope describing local expenditures in the absence of other funds.[111]

Michelson also suggests that "state funds can be equalizing even if they are correlated with local funds and capacity" because increased state aid for education finance most often reduces the degree of inequality among school districts.[112]

The preceding paragraphs discussed some of the issues underlying the measurement of equity in education finance. Researchers must give careful consideration to issues such as the most appropriate unit of analysis and the most accurate method of measuring wealth neutrality, among other issues. The specific measures and methods that were utilized in the present study are further discussed in the following chapter. The following section of this chapter explains the importance of ensuring equity in education finance schemes.

The Importance of Ensuring Equity

There are many valid and important reasons for ensuring the equitable distribution of educational opportunity in our society. Economic philosophers such as Marx,[113] Smith,[114] Keynes,[115] Galbraith,[116] and Friedman[117] have all recognized the importance of education to an efficient and productive economy.[118] Members of society must have a "minimal endowment of assets" in order for the economy to be successful, and education enables more people to acquire such assets: "Because most people have potential to sell their own labor, one approach to increasing the number of people with the minimal endowment is to increase their effectiveness and marketability as workers."[119]

Indeed, many studies have revealed numerous positive effects of education, both for the individual and for society as a whole. Schultz concluded that between 36% and 70% of the economic growth that occurred in the United States between 1929 and 1957 was associated with the increased levels of education among the population.[120] In conducting research on the social and economic returns of investment in education, Weisbrod revealed many benefits to society, such as increased literacy, reduced dependency of individuals, intelligent self-government, and healthy economic activity.[121]

Particularly since the latter half of the Twentieth Century, many scholars in education finance have made the argument that funding for education is a right that should be provided to all on equal terms.[122] Indeed, many court cases pertaining to education finance have invoked the equal protection clause of the Fourteenth Amendment to the U.S. Constitution as well as similar clauses contained within state constitutions. These cases will be discussed further in a later section of this chapter.

Aside from these claims for equal protection under the law, the importance of ensuring equity in education finance is also heavily attributed to the commonly held perception that the equity of inputs affects the equity of educational outcomes.[123] Indeed, the equitable distribution of educational resources and services attempts to ensure a similarly equitable distribution of future life-status among school children.[124] As Roe L. Johns argued, "Education is the principal means by which we seek to provide equality of opportunity... It is the means by which we 'break down the barriers between caste and class and provide for social mobility.'"[125] There is considerable support for the argument that an unequal provision of educational services constitutes a violation of constitutional rights, and this point has been debated in a number of court cases, as enumerated in the following section of this chapter.[126]

Much research has been conducted regarding the association between funding levels and educational achievement.[127] Many scholars have argued that inequitable levels of funding produce inequitable levels of educational opportunity and outcomes: "[F]unding discrepancies are still correlated with gaps in educational attainment, as measured by dropout rates, SAT scores, and tests of mathematical proficiency."[128] In fact, the highest courts in at least fifteen states have acknowledged a positive relationship between educational expenditures and educational opportunity.[129] Thus, there are many important and valid reasons for ensuring equity in education finance. For all of these reasons, many plaintiffs have sought relief from funding inequity in the federal and state courts. A discussion of school finance litigation is contained in the following section.

Court Cases Pertaining to Equity of Education Finance

Increasingly, cases involving education finance are being considered at both the federal and the state level. Especially since the 1970s, there has been a dramatic surge in litigation concerning education finance. In many recent cases, the plaintiffs have won against the state: "Since 1989, eleven state funding systems have been ruled unconstitutional by state supreme courts and six have been ruled constitutional. During the second wave of litigation (1989 to present), many courts have sided with the plaintiffs."[130] This trend was partly the result of unsuccessful attempts by education reformers to gain the support of state legislatures; as a result, those wishing to reform public education "turned to federal and state constitutions and the assistance of courts to obtain relief."[131] Since the modern era of school finance litigation began in 1971, thirty-five of the states' highest courts have ruled on the constitutionality of their states' education funding systems; of these, eighteen have upheld the state funding distribution, while seventeen have declared the system unconstitutional.[132]

In one sense, the trend toward school finance litigation has followed from the school desegregation lawsuits. Once the movement toward desegregation had been fulfilled, those supporting the rights of all students to have equal access to a quality education perceived that school finance litigation was the only remaining means of achieving equality of educational opportunity.[133] Indeed, the perception is widely shared that the judicial system is currently the only viable means of remedying inequity in education finance, especially considering the trend over the past two decades favoring reduced taxes over increased educational funding.[134]

The first court case to have a significant impact upon equity in education was the case of *Plessy v. Ferguson,* which ironically pertained to public railway transportation and not overtly to public education.[135] The Supreme Court noted in its decision that the most common instance of racial segregation "is connected with the establishment of separate schools for white and colored children, which have been held to be a valid exercise of the legislative power even by courts of states where the political rights of the colored race have been longest and most earnestly enforced."[136] The Supreme Court ruled that laws permitting or requiring racial segregation "do not necessarily imply the inferiority of either race to the other, and have been generally, if not universally, recognized as within the competency of the state legislatures in the exercise of their police power."[137]

In the subsequent case of *Cumming v. Richmond County Board of Education*, the United States Supreme Court upheld the right of a Georgia school district to offer a high school education only to white students and ruled that this denial of a high school for minority students did not violate the equal protection under the law that is guaranteed by the Fourteenth Amendment.[138] The school district argued that the amount of funding for public schools in that county was not sufficient enough to support the operation of two high schools, and given that segregation was a legal practice at that time, it was better to operate one high school for white students rather than no high schools at all. The Supreme Court agreed with the school district, stating:

> The substantial relief asked is an injunction that would either impair the efficiency of the high school provided for white children or compel the board to close it. But if that were done, the result would only be to take from white children educational opportunities for the education furnished in high schools. The colored children

> would not be advanced in the matter of their education by a decree compelling the defendant board to cease giving support to a high school for white children.[139]

Thus, the practice of denying a high school education to minority students while providing the same education to white students was ruled as constitutional because it was due to insufficient funds and because it was legal to maintain racial segregation in the schools at that time.

The case of *Brown v. Board of Education* was also significant to the field of education finance in many ways. In this decision, the United States Supreme Court ruled that "education is perhaps the most important function of state and local governments" and is also "the very foundation of good citizenship."[140] The Court went on to argue that education is in fact a prerequisite for success in life:

> In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such an opportunity, where the state has undertaken to provide it, is a right which must be made available to all on equal terms.[141]

The United States Supreme Court relied upon the "separate but equal" doctrine established in *Plessy v. Ferguson*, which states that "equality of treatment is accorded when the races are provided substantially equal facilities, even though these facilities be separate."[142] However, the plaintiffs argued that their schools were not in fact "equal," thus alleging a violation of the Fourteenth Amendment. The Court thus concluded that racial segregation in public schools deprives minority children of equal educational opportunity. Therefore, the Supreme Court overturned *Plessy v. Ferguson* by stating that the "separate but equal" doctrine is not applicable to public education: "Separate educational facilities are inherently unequal."[143]

The principle of fiscal neutrality as applied to education finance was legally established in 1971 by the landmark case of *Serrano v. Priest.*[144] This case was especially significant in that it "strongly documented the establishment of a new equal protection application to school finance."[145] In this case, the California Supreme Court became the first court to accept the relationship between the cost of educational programs and the quality of educational services. The *Serrano* case was also the first to establish a "judicially manageable standard" that could be utilized by courts to decide cases of inequitable funding of education.[146] The *Serrano* principle states that "the quality of a child's education cannot be a function of the wealth of the local community, but instead must be a function of the wealth of the state as a whole."[147] The court's analysis of the case revealed that the California system for funding public education "created great disparities in school revenues," particularly because of the way that it "generated school revenue proportional to the wealth of the individual school."[148] Therefore, the *Serrano* case had great significance for equity in education finance for several reasons. First, it marked the acceptance by the courts of the relationship between the cost and the quality of education. Second, it established that the quality of education could not be dependent upon local property wealth.

Another landmark case in the area of education finance was that of *San Antonio Independent School District v. Rodriguez.*[149] In this case, the plaintiffs challenged the equity of the Texas education finance system, which relied heavily upon local property taxes. Residents of poorer school districts with a lower property tax base argued that the system constituted a violation of the equal protection clause of the U.S. Constitution. The Supreme Court decided that the Texas system "abundantly satisfies" the Equal Protection

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Clause, which requires that a state action must rationally further a "legitimate state purpose or interest" in order to be constitutional.[150] In this case, the Court decided that the funding formula used by the state of Texas met a legitimate state purpose and thus did not violate the equal protection clause of the Fourteenth Amendment.[151] The Court also observed that education is not a fundamental right protected under the U.S. Constitution: "Education, of course, is not among the rights afforded explicit protection under our Federal Constitution. Nor do we find any basis for saying it is implicitly so protected."[152]

This decision undermined the widely held claim that education was a fundamental right,[153] although the Supreme Court itself even "acknowledged that education has a strong nexus with such guaranteed first amendment rights as speech and that it is important to the intelligent use of the right to vote, a fundamental interest."[154] Although the *Rodriguez* decision had significant impacts on the future of education finance litigation, it did not prevent state courts from ruling that education is a fundamental right under a state constitution's equal protection clause, especially considering that many state constitutions contain such clauses as well as specific references to public education.[155] In fact, since *Rodriguez*, education finance cases have been tried primarily at the state level, and plaintiffs have relied upon the education and equal protection clauses in state constitutions and statutes rather than claiming education as a fundamental right under the U.S. Constitution.[156]

Although horizontal equity – which is also referred to as strict financial equity – is clearly an important principle in education finance, it is not the only consideration in providing an equitable distribution of resources. In fact, the plaintiffs in most education finance cases tend to oppose reliance solely on horizontal equity because it does not incorporate the varying educational needs of public school students.[157] The principle of vertical equity – which takes into consideration the different needs of students – was firmly established in the case of *Robinson v. Cahill*,[158] which was decided soon after the *Rodriguez* case. In this landmark decision, the court acknowledged that education finance systems must compensate for the differing needs and circumstances faced by school children of varying ability levels and backgrounds. In this sense, the New Jersey courts have expanded the concept of equal educational opportunity to include not only horizontal equity but also vertical equity.[159]

Robinson v. Cahill was also significant in that the New Jersey Supreme Court became the first state supreme court to find the state distribution unconstitutional solely on the grounds of state constitutional provisions.[160] However, this case differed from other education finance cases because the decision centered on the "thorough and efficient" clause in the state constitution rather than upon state equal protection laws.[161] In this manner, the *Robinson* case set an important precedent by "holding a system of school financing unconstitutional without invoking fundamentality and the state's equal protection clause," thus avoiding the "unusual and unnecessary complications in attempting to address the educational equity issue in terms of equal protection."[162] In the decision, the New Jersey Supreme Court ruled that the state was required by its constitution to prepare school children for "their roles as citizens and competitors in the labor market" and that "all children must have an equal opportunity to receive this level of education."[163] The *Robinson* case was the first of eleven decisions issued in New Jersey over the last twenty-five years, all of which have significantly improved the equity of education in that state.[164] However, the New Jersey Supreme Court has struggled over the years to define what is meant by a "thorough and efficient" system of education, using such sources such as legal precedent, education statutes, and the policies made by the legislative and executive branches of the state government.[165]

The State of Florida has also dealt with several cases pertaining to education finance. In *Gindl v. Department of Education*,[166] the Supreme Court of Florida upheld the component of the Florida Education Finance Program known as the District Cost Differential, which adjusts funding for school districts for the cost of living. The Court ruled that "the district cost differential is not arbitrary, capricious, or unreasonable and unrelated to the goal of providing substantially equal educational opportunities." In addition, the Supreme Court of Florida in this case also upheld the practice of allowing local school districts to levy additional millage, stating that this system "does not violate the equal protection clause, and substantial equality of education is not prevented by the use of leeway millage."

In another case, *Florida Department of Education v. Glasser*,[167] the Florida Supreme Court had denied the plaintiffs' request to define more specifically the provision in the state constitution that requires "a uniform system of free public schools."[168] The Court's reasoning was that it was the responsibility of the legislature to define this phrase. Moreover, the Court ruled that "the uniformity clause is not and never was intended to require that each school district be a mirror image of every other one" and that it "will not be construed as tightly restrictive, but merely as establishing a larger framework in which a broad degree of variation is possible."[169]

The most recent education finance case to be decided by the Supreme Court of Florida was *Coalition for Adequacy and Fairness in School Funding v. Chiles*, in which the plaintiffs asked the court to "declare that an adequate education is a fundamental right under the Florida Constitution, and that the State has failed to provide its students that fundamental right by failing to allocate adequate resources."[170] The Supreme Court of Florida affirmed the trial court's order of dismissal, ruling that the appellants had "failed to demonstrate in their allegations a violation of the legislature's duties under the Florida Constitution."[171] The Florida Supreme Court affirmed the trial court's order, which reasoned that the court could not "usurp and oversee the appropriations power" of the Legislature because of the separation of powers provision of the Florida Constitution, unless the plaintiffs had asked the Court "to review the constitutionality of a specific legislative enactment."[172]

A review of school finance litigation and reform across the fifty states reveals several common strategies used to improve the equity of state education finance systems. Certain states have opted to raise taxes in order to raise the poorest districts and schools up to the average spending level. Other states have attempted to accomplish the same goal by relying solely upon revenue growth in the state. In an effort to equalize the distribution of funds to school districts, some states have reduced or altogether eliminated state aid to the wealthiest school districts, instead redistributing those funds to the poorest districts in the state. Another option that some states have considered is redistributing property wealth beyond the existing school district boundaries in order to achieve a more even distribution. Finally, certain states have placed limitations on the spending ability of wealthy districts while simultaneously raising the level of expenditures for the poorest districts.[173]

The United States Governmental Accounting Office also identified some major findings in its case analysis of school finance litigation in three states. The first finding was that the education finance lawsuits in these cases were successful in forcing the states to address inequities in educational funding distributions. In addition, each of these three states was able through legislation to provide additional assistance to the poorer school districts without harming the wealthier districts. Finally, the implications of this study suggest that other states should focus more attention upon defining equity in terms of specific levels of achievement, linking the finance system with appropriate accountability measures, and allow participation by all groups in the policy making process.[174]

Some researchers argue that many of these education finance cases have failed to "translate success in the courtroom into success in the classroom."[175] In these instances, the system of financing schools may indeed be more equitable, but there has been little measurable improvement in the educational achievement of lower income students.[176] Thus, further research would be required in order to determine why these more equitable school finance systems do not appear to be effective in promoting greater achievement for disadvantaged students. However, the education finance litigation that has occurred to date has contributed extensively to the further definition of equity as applied to education.

As the concept of equity in education finance has evolved over time, the states have attempted to develop funding formulas that provide a more equitable distribution of funds. In the State of Florida, this effort has culminated in the Florida Education Finance Program, which has served as the method of funding public schools in Florida since 1973. The following section describes the Florida Education Finance Program in greater detail, beginning with a brief history of its creation and implementation.

The Florida Education Finance Program

The Florida Education Finance Program resulted from a notable effort to equalize educational funding in Florida in the early 1970s. The governor at that time had appointed the Governor's Citizens Committee on Education, more commonly known as the "Schultz Committee," to study all aspects of public education in Florida. The Schultz Committee recommended in 1973 that the existing funding formula be modified in order to simplify it and to make it more equitable.[177] Subsequently, the existing Minimum Foundation Program, which had been in effect since 1947, was revised and renamed the Florida Education Finance Program by the 1973 Florida Legislature. The legislation that created the FEFP stated:

> The intent of the Legislature is to guarantee to each student in the Florida public educational system the availability of programs and services appropriate to his or her educational needs which are substantially equal to those available to any similar student, notwithstanding geographic differences and varying local economic factors.[178]

At the time of its inception, the FEFP was a "national model for inter-district equity."[179] Since that time, it has been revised annually by the Legislature in search of a more equitable distribution of funds. Today, the Florida Education Finance Program distributes over 10 billion dollars of funding for approximately 2.4 million students in 67 school districts across the state.[180]

The creation of the Florida Education Finance Program by the Florida Legislature in 1973 marked a significant change in the system of funding public education in the state. Instead of basing the finance system upon the number of teachers or classrooms, the FEFP calculated funding based upon "the individual student participating in a particular educational program."[181] Although the funding formula used by State of

Florida technically qualifies as a foundation program, in effect the FEFP provides *de facto* full state funding. This is because of the limitations on local property taxes and other controls placed upon districts by the state.[182] The following section provides a detailed discussion of the various components of the Florida Education Finance Program.

The Florida Education Finance program is classified as a highly modified foundation program that closely resembles a full state support program. In this way, Florida is similar to other states, such as New Mexico, Minnesota, and Hawaii, which approach full state support but "actually operate more like high-level foundation programs financed by state property taxes than like full state support programs."[183] The FEFP provides funding on the basis of the number of full-time equivalent students (FTEs). A full-time equivalent is defined by Florida statute as one student in membership for a school year or its equivalent, which is defined by a standard of 900 hours of instruction.[184] The FEFP also utilizes a variety of program cost factors in order to recognize the varying costs of different educational programs. This feature of the funding formula ensures that "each program receives its equitable share of funds in relation to its relative cost per student."[185]

The FEFP is known for its complexity and for its recognition of the varying costs of educating students in different grade levels and with varying levels of ability.[186] These different cost factors reflect an underlying set of values that is unique to Florida because it places greater priority on providing quality instruction in the early grades.[187] Although the FEFP at one time had more than 50 different program cost factors, the State of Florida has since collapsed the number of cost factors in order to simplify the FEFP. This was accomplished primarily through the adoption of a new funding model for exceptional student education programs which utilizes only five levels of service that indicate the severity of a student's needs.[188] This model was formally adopted and implemented by the Florida Legislature in 1997.[189]

The FEFP calculates the total amount of base funding by first multiplying the number of FTEs by the program cost factors for each student in order to calculate the number of weighted full-time equivalent students, abbreviated as WFTEs. The program cost factors differ by grade level, by the level of exceptional student education services required, and for special programs such as English for Speakers of Other Languages (ESOL) and Vocational Education programs for sixth through twelfth grades. The Florida Legislature utilizes a three-year averaging method in determining the cost factors each year. For the 1999-2000 year, students in basic education in fourth through eighth grades are assigned a cost factor of 1.000, while students in kindergarten through third grade receive a factor of 1.057 and students in ninth through twelfth grades receive a factor of 1.115. Students receiving special education services are assigned to one of five support levels that reflect the severity of the students' needs. Special education students thus receive cost factors of 1.341, 2.072, 3.287, 4.101, or 6.860 depending upon their support levels. Students in the ESOL program are assigned a factor of 1.211, and students in Vocational Education are also assigned a factor of 1.211.[190]

The number of WFTEs is then multiplied by the Base Student Allocation, which is an amount designated annually by the Legislature. For the 1999-2000 fiscal year, the Base Student Allocation was $3,227.74.[191] This amount is then multiplied by the District Cost Differential in order to account for the varying cost of living among the school districts. This adjustment relies upon a three year average of the Florida Price Level Index in order to reduce the "immediate impact of sudden changes in the index."[192]

The State of Florida was among the first states to adjust funding for public schools according to the varying cost of living across the state. Such adjustments compensate for the "differences in local school district purchasing power" that are caused by the varying cost of living.[193] This adjustment is calculated using the Florida Price Level Index (FPLI), which initially used a three-year average of pricing from the Consumer Price Index to estimate the differential cost of living among school districts in Florida.[194] However, the FPLI was eventually restructured in order to improve its accuracy.[195] Today, the FPLI measures the differences in the prices of 117 items across the 67 school districts.[196]

The Florida Education Finance Program utilizes a number of formula adjustments in order to account for various factors that affect the cost of public education throughout the state.[197] One such adjustment is the Declining Enrollment Supplement, which provides additional financial assistance to school districts that are experiencing a decline in their enrollment, thus protecting them against potentially sudden budget cuts. Another adjustment, the Sparsity Supplement, allocates additional funding for districts with sparsely settled populations in order to account for the transportation costs and other expenses associated with sparse populations. The Safe Schools Allocation distributes funds for improving the safety of public schools across the state; 67% of these funds are distributed to the districts with the greatest need, as measured by the Florida Crime Index, and the remaining 33% is distributed proportionately to all districts according to enrollment size. Districts are also protected from sudden changes in enrollment size by the Hold Harmless adjustment, which guarantees a minimal increase in funding to every school district: this amount is equal to at least 1% of the number of full-time equivalents in the prior year. The Disparity Compression Adjustment was added in 1996-97 to reduce the overall disparity in funding per student among the 67 school districts by raising the level of funding for the poorest districts in order to bring them closer to the mean. The FEFP also contains an adjustment for Discretionary Tax Equalization, which provides assistance to school districts with a lower ability to generate tax revenue for education.

Although many states, like Florida, attempt to provide local school districts with greater flexibility in raising additional funds for public education, this local flexibility also has the consequence of reducing the amount of equalization among all school districts within the state. However, Florida is one of several states that place certain restrictions upon local discretionary taxes in order to maximize equalization while also providing greater flexibility.[198] Florida also provides discretionary tax equalization to school districts that are unable to raise $50 per FTE when levying the maximum amount of discretionary millage permitted by the state for current operating expenditures.[199]

Thus, the Florida Education Finance Program is a highly complex formula that takes many factors into account and attempts to adjust for the varying circumstances and needs of each school district. Although this funding formula is much more evolved than previous formulas used by the State of Florida, there have been a number of studies that have criticized aspects of the FEFP. The following section presents a history of equity in Florida education finance.

A History of Equity in Florida Education Finance

The State of Florida has a long history of promoting equity in education finance. Indeed, the trend toward equalization of state funding for the public school districts can be traced back to the year 1926.[200] However, the process of achieving equity in education finance in Florida is a continuous one, especially as new challenges and circumstances continue to present themselves from year to year. A review of the various studies of the education finance programs in Florida illustrates the evolutionary process that has culminated in the current Florida Education Finance Program.

As early as 1905, Ellwood Cubberley examined the distribution of funds for education in the State of Florida and used it as an example of equalization.[201] Cubberley noted that the state constitution provided for a statewide tax of one mill, which was then distributed to local school districts based upon the average daily attendance in the schools. By contrast, Cubberley used the example of Tennessee, where taxes were distributed according to the amount of taxes paid by each school district, as an inequitable distribution of funds. Cubberley described the Florida distribution as "far more just and…a much greater force in the direction of equalization of the burdens and the advantages of education than would be the case if the distribution were made on the basis of taxes paid."[202]

However, other early studies of education finance in the State of Florida found substantial evidence of inequality. For example, in 1926, Roe L. Johns found a high degree of inequity among school districts in terms of funding per pupil.[203] According to Johns, "glaring inequalities existed among the counties of the state in revenue receipts per pupil."[204] In 1929, Charles Alonzo Smith found a correlation of .665 between true wealth per school district and current educational expenses per school district, suggesting that the wealthier counties were spending more than the poorer counties.[205] Smith also found that the cost of public education in districts with sparse populations was considerably higher than the cost of education in the more densely populated districts.[206] Overall, Smith discovered a significant amount of variation among Florida counties in terms of funding per pupil.[207]

A longitudinal study of the effects of the Florida Education Finance Program during its first 10 years of implementation suggested that it had not succeeded in promoting fiscal equity. Shiver found that funding disparities had further widened since the inception of the FEFP and that there was a stronger relationship between funding per pupil and wealth per pupil.[208] Shiver also concluded that the level of equalization in 1980-1981 was lower than the equalization in any of the previous 10 years.

However, more recent studies have reported that the FEFP demonstrates high levels of distributional equity. Nakib and Herrington stated in 1998 that the FEFP continues to demonstrate high levels of inter-district equity as defined by most traditional measures.[209] In their study, Nakib and Herrington found no significant variation in the breakdown of district level expenditures by level of property wealth.[210] An earlier study by the Office of Program Policy Analysis and Government Accountability in 1996 measured the equity of opportunity afforded by the FEFP in terms of the relationship between district property wealth and district revenues per student over a five-year period.[211] This study concluded that the formula is relatively wealth neutral, but that the differences that do exist among districts are primarily caused by the District Cost

Differential, which accounts for the varying cost of living among the 67 school districts.[212] A study by Maiden and Wood in 1995 examined the discretionary elements of the Florida Education Finance Program. Maiden and Wood found some disequalizing effects of discretionary levies but concluded that there was "no evidence that any child in the state is harmed."[213]

Still, there are many concerns about the equity that is afforded by the FEFP. A recent study by Owens and Maiden compared interschool and interdistrict funding equity in Florida and revealed some evidence of inequality for schools with high percentages of students with low socioeconomic status.[214] Earlier studies have expressed concern with various components of the formula, especially the cost of living adjustment. Indeed, in an earlier study, Carroll and Park determined that the cost adjustments employed by the FEFP, particularly the District Cost Differential, heavily favor the larger, urban districts, such as Dade and Broward counties.[215] Carroll and Park criticize this component of the FEFP because the cost-of-living adjustment introduces a "very substantial income bias into the distribution of revenues" by allocating additional funds to school districts with the highest levels of wealth and income, which according to their analysis has a negative effect on wealth neutrality.[216] However, it should be noted that the intent of this adjustment is precisely to provide vertical equity among school districts in recognition of the varying cost of "obtaining similarly qualified personnel in different school districts."[217]

Another component of the formula that has been criticized is the use of pupil weighting programs, which some have argued heavily influence the equity of the distribution and also presents a serious threat to the equity of the FEFP where students do not have equal access to such programs.[218] Still others have expressed concern about the discretionary local taxes that are permitted by the FEFP. The Office of Program Policy Analysis and Government Accountability found that the revenue generated within each school district from Discretionary Local Effort, when it is not equalized by the FEFP, also accounts for some of the differences in funding per student among school districts.[219]

There were many criticisms leveled at the FEFP shortly after its implementation. For example, Carroll and Park concluded that the system had become "substantially less fiscally neutral" as a result of the reforms imposed by the FEFP: "The degree of association between per-pupil revenues and wealth, and between instructional expenditures and wealth, remained high between 1972 and 1975."[220] Carroll and Park attributed this trend to the cost adjustment factor, which allocates disproportionate amounts of revenue to the counties with higher income levels.[221] The primary finding of the Carroll and Park study was that a strong relationship between property wealth and funding per-pupil had existed both before and after the FEFP was implemented.[222] Carroll and Park also found that the cost factors used in the pupil weighting system had "no impact whatsoever on the distribution of revenues."[223]

Although the Florida Education Finance Program has been the subject of these and other studies, there was a need to conduct a current analysis of the distributional equity of the FEFP and to examine the trends in the formula's equity over the past 10 years. The present study addresses this question by statistically analyzing the distribution of state and local funds to the 67 school districts between 1990-1991 and 1999-2000. However, it is also important to consider the trends that may affect the future of education finance and their potential implications for the equity of distributional formulas.

Future Trends in Education Finance

There are a number of notable trends in the field of education finance at the beginning of the Twenty-first Century. Indeed, issues of education finance have become increasingly complex. The most recent legal cases involving education finance extend far beyond traditional legal concepts to "complex questions of education, economics, and politics."[224] Heubert lists some recent examples of this trend, including *Rose v. Council for Better Education*,[225] *Abbott v. Burke*,[226] and *McDuffy v. Secretary of the Executive Office of Education*.[227] These cases often require the collaborative contributions of "educators, lawyers, researchers, parents, and state-level policy makers."[228] In fact, school finance litigation in several states has sparked "ambitious statewide school reform efforts."[229] This is a promising trend, since equity of educational opportunity is facilitated by strong support of not only the judiciary but the legislature as well: "equal educational opportunity is well served when legislative enactments provide support and substance to judicially defined constitutional rights."[230] However, the trends in state supreme court decisions have varied considerably among the 50 states. Although some courts have been more assertive in defining equity and adequacy with respect to the state education finance system, other courts are "playing a less active role and deferring to the legislature to improve or redesign the funding formula."[231] .

One of the most prominent trends that has occurred over the past decade is a shift in the litigation of education finance cases away from the issue of equity and toward the issue of adequacy.[232] This concern for adequacy is particularly directed toward school districts with high percentages of lower income students.[233] This trend toward the litigation of educational adequacy has been strengthened in the past two decades by the establishing of "explicit educational standards" by many state governments.[234]

The recent attention to the issue of adequacy has focused heavily on the provisions of state constitutions for education, many of which contain guarantees for a "thorough and efficient" education. Understandably, such provisions often prove difficult to interpret. Measures of a thorough and efficient education focus more on "the provision of those programs, services, and facilities that are needed to meet the State's Core Curriculum Content Standards—most likely a level of education currently afforded in the state's wealthiest districts."[235] This shift constitutes an acknowledgement by the courts that students living in less wealthy areas should receive additional support in order to be able to compete with their more economically advantaged peers.[236]

The economic and political context of the State of Florida in particular presents numerous challenges and opportunities in the area of education finance. The demographics in Florida suggest that Florida will continue to experience enormous population growth in the near future, becoming the third largest state in the nation by the year 2010. In addition, Florida is expected to have especially high proportions of "minority students, limited English-proficiency students, foreign-born students, and students with disabilities."[237] The political context of Florida is also changing, as the government becomes more fiscally conservative and policymakers focus more intently upon educational issues.

The trend toward the litigation of adequacy rather than equity has also taken place in the State of Florida. Since all of the legal challenges to the equity of the Florida Education Finance Program have thus far been unsuccessful, it is expected that any future lawsuits will address the adequacy of the formula rather than its equity.[238] To some extent, this trend has already been demonstrated in the recent cases of *Coalition for Adequacy and Fairness in School Funding v. Chiles*[239] and *Honore v. Florida State Board of Education*.[240] However, it should also be noted that the issues of equity and adequacy are closely related in school finance litigation.[241]

The general trend in school finance litigation is for state legislatures to shift the responsibility for funding education toward the state and away from the local school districts. However, such transformations of state education finance systems often require a "dramatic restructuring, where financing is shifted primarily from local property taxes to statewide taxes."[242] States have accomplished such restructuring through a variety of strategies, including restrictions on the amount of local property tax that can be levied, imposing a uniform rate of taxation upon local school districts, limiting the amount of discretionary spending by wealthy school districts, and an increased reliance upon statewide taxes rather than local taxes. However, there is a possibility that such strategies have the unintended effect of distributing state tax revenue towards programs other than public education.[243]

Conclusion

This chapter began with a discussion of the history of fiscal support for public education and the theory of equity in education finance, followed by an overview of the issues pertaining to the measurement of equity. A summary of education finance litigation was also presented in this chapter, as well as a detailed explanation of the Florida Education Finance Program and the history of education finance in the State of

Florida. The next chapter includes a discussion of the methodology that was used in the present study to measure the equity of the Florida Education Finance Program over the past 10 years.

Notes

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[3] Percy E. Burrup, Vern Brimley Jr., and Rulon R. Garfield, *Financing Education in a Climate of Change*, 7th ed. (Boston: Allyn and Bacon, 1999), 163.

[4] Kern Alexander and M. David Alexander, *American Public School Law*, 5th ed. (Belmont, CA: Wadsworth Publishing Company, 2001), 63-64.

[5] Alexander and Alexander, 63-64.

[6] Thompson, Wood, and Honeyman, 96.

[7] Myra Pollack Sadker and David Miller Sadker, *Teachers, Schools, and Society*, 5th ed. (Boston: McGraw Hill, 2000), 295-298.

[8] Sadker and Sadker, 282.

[9] Alexander and Alexander, 24-25.

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[11] Thompson, Wood, and Honeyman, 112-114.

[12] Johns, "The Development of State Support for the Public Schools," 1.

[13] Harlan Updegraff, *Rural School Survey of New York State* (Philadelphia: William Fell Co., 1922), 110.

[14] R. Craig Wood and David C. Thompson, *Educational Finance Law: Constitutional Challenges to State Aid Plans – An Analysis of Strategies*, 2nd ed. (Topeka, KS: National Organization on Legal Problems of Education, 1996), 18.

[15] William N. Dunn, *Public Policy Analysis: An Introduction*, 2nd ed. (Englewood Cliffs, NJ: Prentice Hall, 1994), 287.

[16] Kern Alexander, "Concepts of Equity," in *Financing Education: Overcoming Inefficiency and Inequity*, ed. Walter W. McMahon and Terry G. Geske (Chicago: University of Illinois Press, 1982), 194.

[17] Dunn, 286.

[18] Thompson, Wood, and Honeyman, 57.

[19] Alexander, "Concepts of Equity," 199.

[20] Molly S. McUsic, "The Law's Role in the Distribution of Education: The Promises and Pitfalls of School Finance Litigation," in *Law and School Reform*, ed. Jay P. Heubert (New Haven: Yale University Press, 1999), 89.

[21] Alexander, "Concepts of Equity," 199.

[22] Paul R. Mort, *State Support for Public Schools* (New York: Columbia University Teachers College, 1926), 3.

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CHAPTER 3
METHODOLOGY

Introduction

The objective of this study was to examine the distributional equity of the Florida Education Finance Program between 1990-1991 and 1999-2000. The specific intent of the study was to focus upon the degree of horizontal equity and wealth neutrality of education finance among the 67 school districts. The previous chapter presented a review of the literature that was pertinent to this study. In this chapter, the methodology of this study is explained, including the research design and the specific measures that were utilized to measure the equity of the formula.

Research Design

The research questions that were addressed in this study were as follows. First, this study measured the equity of the Florida Education Finance Program between 1990-1991 and 1999-2000 in terms of horizontal equity among school districts. Second, the equality of opportunity, or wealth neutrality, was evaluated by measuring the relationship between funding per student and property wealth per student. This relationship was further examined to determine whether it was characterized by linearity or whether the relationship quadratic or cubic in nature.[1] Finally, this study was concerned with the ways in which the equity of the FEFP has changed between 1990-1991 and 1999-2000, and which policies or adjustments to the funding formula might have influenced those changes.

The horizontal equity of the FEFP was examined through the use of the measures of univariate dispersion, described in the following section, which were used to compare the amount of funding per student among the school districts. The wealth neutrality of the formula was evaluated using regression analysis, with property wealth per student as the independent variable and funding per student as the dependent variable. This relationship is expressed by the following statistical equation:

$$Y_i = \alpha + \beta X_i + \varepsilon_i$$

In this equation, Y represents the dependent (or outcome) variable, α represents the intercept term, β represents the slope of the predicted line (also referred to as the regression coefficient), and ε represents the error term. The regression analysis was also used to evaluate the quadratic and cubic regression models. These models are expressed by the following statistical equations:

$$\text{(quadratic) } Y_i = \alpha + \beta_1 X_i + \beta_2 X_i^2 + \varepsilon_I$$

$$\text{(cubic) } Y_i = \alpha + \beta_1 X_i + \beta_2 X_i^2 + \beta_3 X_i^3 + \varepsilon_I$$

Analysis of the statistical significance of each regression coefficient was employed to determine which of these regression models accurately depicted the relationship between wealth per student and funding per student.

For the purposes of this study, funding per student is defined as the combined amount of state and local funding for each school district divided by the number of weighted full-time equivalent students in the district, as calculated using the pupil unit of analysis. The amount of total state and local funding, as reported by the Florida Senate

Appropriations Committee, includes the funds provided by the state formula, state categorical funds, local required taxes, and discretionary local dollars.[2] The wealth neutrality of the formula was measured by calculating the correlation between funding per student and wealth per student for each year and by examining the slope and elasticity of the relationship. The amount of wealth per student was calculated by dividing the total property tax valuations for each district by the number of weighted full-time equivalent students. The amount of property wealth per district consisted of the total school taxable value for each district, which is reported annually by the Florida Department of Revenue.

The data for this study were obtained from several sources published by the Florida Legislature and the Florida Department of Revenue. The data for expenditures per student from each district and for each year were taken from the ten-year report of the Florida Senate Appropriations Committee, *A Statistical Review of Education in Florida*.[3] The data for property wealth were taken from yearly reports from the Florida Department of Revenue.[4] These figures were then divided by the number of weighted full-time equivalent students in each district in order to yield the property wealth per student.

Several statistical measures were utilized in the analysis of these data. The measures that were used can be divided into two categories: measures of univariate dispersion and measures of regression or relationship. The following sections of this chapter define and describe each measure in detail.

Measures of Horizontal Equity

The measures of univariate dispersion that were utilized in this study addressed the question of horizontal equity among the 67 school districts. The most common measures of univariate dispersion include the mean, median, range, restricted range, federal range ratio, variance, standard deviation, coefficient of variation, relative mean deviation, McLoone index, Gini coefficient, and the standard deviation of logarithms.[5] Each of these measures is defined and explained in this section.

Mean

The mean is a measure of central tendency and, within the context of education finance, it represents the average amount of funding per pupil among all districts for a given year. A calculation of the mean is helpful as a preliminary step in identifying funding inequities, especially in terms of those school districts whose funding per student widely differs from the mean.[6] However, the mean is primarily a descriptive statistic and does not by itself provide any substantial information about the level of equity of a distribution.[7] Furthermore, the mean is especially sensitive to extreme values and outliers, which means that the results might be skewed for distributions that are not normal in shape. Thus, the mean is not as useful as other statistical measures, although it does lay the foundation for other measures of equity that are more complex.

Median

Although the median is not by itself a measure of horizontal equity, the median is explained here because it is a component of the McLoone Index, which is explained later in this chapter. The median is also a measure of central tendency that can be used to compare the level of funding across all districts for each year. The median is less sensitive to outliers than the mean, and it is also less influenced by a skewed distribution. Thus, the median can sometimes be more appropriate than the mean when analyzing a distribution with extreme values. The median consists of the middle value, or the midpoint, of the distribution when the observations are ordered from lowest to highest.[8]

Range

The range consists of taking the arithmetic difference between the highest and lowest values in the formula distribution.[9] Although the range is a very simple calculation, it does provide a basic indication of the degree of variation within the distribution. Thus, a smaller range implies a more equitable distribution, while a larger range indicates a less equitable distribution. However, because the range is only based upon two observations in the whole distribution, its ability to identify funding inequity is limited.[10] Still, it is reasonable to conclude that horizontal equity is inversely related to the size of the range. In other words, the level of equity decreases as the range increases. Another consideration is that the range does not detect other characteristics of variability, such as differences in the amount of variation about the center of the distribution.[11]

Restricted Range

The restricted range is very similar to the range; however, instead of calculating the difference between the highest and lowest observations, the restricted range is concerned instead with the difference between the observations at the 95th and 5th percentiles of the distribution.[12] This stipulation makes the restricted range less sensitive than the range to outliers at either end of the distribution by examining only the middle 90% of observations. However, the restricted range still provides only a limited amount of information about the entire distribution.[13]

Federal Range Ratio

The federal range ratio consists of the restricted range divided by the amount of funding per-pupil at the 5th percentile of the distribution.[14] In a perfectly equitable distribution, the federal range ratio would equal zero, because the restricted range would be equal to zero. Thus, a smaller federal range ratio indicates a more equitable distribution. The federal government uses this statistic in order to "determine eligibility for states to take into consideration federal impact aid payments to local school districts."[15] The federal range ratio is most often used as "an alternative expression of relative equity achievement."[16]

Variance

The variance is defined as the average of the squared deviations from the mean for each value within the distribution.[17] The deviation consists of the difference between each observation and the mean of the distribution. Although the variance can be difficult to interpret because the units of measurement are squared, the size of the variance does provide some indication of the degree of equity. A smaller variance calculation reveals a more equitable distribution, because there is less variance within the distribution. In terms of education finance, the variance is calculated with the formula

$$(\Sigma P_i(X_p - X_i)^2) / \Sigma P_i$$

where Σ is the sum of pupils in all districts, Pi is the number of students in district i, X_p is the mean of some tested variable for all pupils, and X_i is the same variable as measured in district i.[18] However, it is important to note that the variance is sensitive to equal percentage changes and thus may be distorted by inflation in longitudinal studies.[19]

Standard Deviation

The standard deviation is calculated by taking the square root of the variance of the distribution. The standard deviation is always positive; it can only equal zero when all of the observations in the distribution are identical.[20] Like the variance, the standard deviation also decreases as the distribution becomes more equitable. However, it is important to note that the standard deviation assumes that the distribution is normal.[21] An advantage of the standard deviation is that it incorporates all data points in the distribution and measures the deviance from the mean. This makes the standard deviation a relatively stable measure, although it is not as useful in making comparisons among states because it is influenced by the scale of the distribution.[22]

Coefficient of Variation

The coefficient of variation is calculated by dividing the standard deviation by the mean value of the distribution. This value typically falls between zero and one, with smaller values indicating a greater degree of equity.[23] Thus, as the coefficient of variation increases, the level of equity decreases. The coefficient of variation is a measure of variability that incorporates the entire distribution of per-pupil inputs.[24] An advantage of the coefficient of variation is that it converts the standard deviation into a value that is comparable across distributions.[25] Thus, the coefficient of variation is more useful and appropriate than the standard deviation in making comparisons across state education finance systems.

Relative Mean Deviation

The relative mean deviation calculates the distance of each point in the distribution from the mean and expresses the sum of these distances as a proportion of the whole distribution. When measuring the equity of an education finance system, this is done by taking the sum of the absolute values of the differences of each data point – the average amount of per-pupil funding for each district – from the mean and then dividing that sum by the total amount of funding received by all school districts.[26]

McLoone Index

The McLoone Index was designed specifically for education finance in order measure the degree of equity as it affects the bottom half of a distribution. Expressed mathematically, the McLoone index is the "ratio of the sum of expenditures per district for all districts below the median to the sum of all expenditures that would be required if all districts below the median were brought up to the median expenditure level."[27] The formula used to calculate the McLoone index is expressed by the formula

$$\Sigma P_i X_i \,/\, M_p \Sigma P_i$$

where P_i represents the number of pupils in district i, X_i represents the average amount of funding per pupil in district i, and M_p represents the median value of funding per pupil among all school districts. The value of this index usually falls between zero and one, with larger values indicating the most equitable distributions. In this way, the McLoone Index is unlike other measures of horizontal equity, since the other measures all decrease in value as the level of equity increases.[28]

Gini Coefficient

The Gini coefficient is often used in economics in order to measure the degree of inequality of income distribution. However, the Gini coefficient can also be applied to education finance as a measure of the equity of a distribution. This measure is based upon the Lorenz curve, which graphs "the percentage of total objects received by increasing percentages of pupils calculated when pupils are placed in ascending order of per-pupil objects."[29] The Gini coefficient itself measures the area between the Lorenz curve and the 45° line. For a perfectly equitable distribution, the Lorenz curve would equal the 45° line. Thus, a perfectly equitable distribution would yield a Gini coefficient of zero, while a perfectly inequitable distribution would yield a Gini coefficient of one. As applied to education finance, the Gini coefficient is calculated using the formula

$$(\Sigma P_i P_j \left| X_i - X_j \right|) \, / \, [2 \, (\Sigma P_i)^2 X_p]$$

where P_i represents the number of pupils in district i, P_j represents the number of pupils in district j, X_i represents the average funding per pupil in district i, X_j represents the average funding per pupil in district j, and X_p represents the median revenues per pupil for all pupils. Although the Gini coefficient can be helpful in assessing a state system of education finance, it is more difficult to explain, and it is also problematic in terms of making comparisons between states because education funding distributions vary so widely across the states.[30]

Standard Deviation of Logarithms

The standard deviation of logarithms is the square root of the variance of the natural logarithm of funding per student.[31] This measure is similar to the coefficient of variation and the Gini coefficient in that it includes all pupils but is insensitive to equal percentage increases.[32] Thus, it is appropriate for longitudinal studies. The standard deviation of logarithms is calculated using the formula

$$(\Sigma P_i(Z - \log_e X_i)^2) \,/\, (\Sigma P_i)^{1/2}$$

where P_i represents the number of pupils in district i, X_i represents the average funding per student in district i, and Z is calculated by the formula $\Sigma P_i(\log_e X_i) / (\Sigma P_i)$. Like these other two measures, a smaller value of the standard deviation of logarithms indicates a greater degree of fiscal equity. However, it is interesting to note that the standard deviation of logarithms "places more weight at the low end of the distribution due to the logarithmic transformation."[33]

Measures of Wealth Neutrality

The preceding sections described each of the measures of univariate dispersion that were used in this study. While these measures addressed the horizontal equity of the formula, the correlation and regression measures addressed the question of wealth neutrality and included the correlation, slope, and elasticity.[34] These regression measures were calculated for the linear, quadratic, and cubic regression models for each year that was examined in this study, and hypothesis testing was utilized in order to determine the exact nature of the relationship between funding per student and wealth per student.

Correlation

The simple correlation is a measure of relationship that describes the "degree to which two variables are associated with each other," and in this case the two variables are the amount of funding per student and the amount of wealth per student.[35] The correlation is defined as a standardized version of the slope, which is described in the following section.[36] In studies of education finance, these variables often consist of expenditures per pupil and property wealth per pupil. In education finance, the presence of a relationship between expenditures per student and property wealth per student is viewed as a sign of inequity. Thus, a smaller correlation generally reveals a more equitable distribution. The correlation ranges from negative one, which would indicate a perfectly negative linear relationship, to positive one, which would indicate a perfectly positive linear relationship.[37] While the correlation does have the capacity to indicate the strength of an association between two variables, it lacks the ability to show causality.[38] In other words, although two variables may be associated with each other, that does not necessarily imply that changes in the dependent variable are actually caused by changes in the independent variable.

Slope

The slope is a measure of relationship that indicates the size of change in the dependent variable relative to one unit of change in the independent variable. In the case of a linear relationship, the slope equals the amount of change in the dependent variable for an increase of one unit in the independent variable.[39] Thus, the slope represents the strength of the relationship between two variables of interest. When measuring wealth neutrality in education finance, a slope of zero indicates an equitable distribution.[40] In this way, the slope measures the magnitude of the relationship rather than its strength; a greater slope indicates a greater magnitude of relationship. In the case of education finance, the level of fiscal neutrality of a distribution decreases as the slope of the relationship increases.[41]

Elasticity

The elasticity is like the slope in that it measures the magnitude of a relationship rather than its strength of association. However, the elasticity differs from the slope in that it measures change in terms of percentages and not in terms of absolute values. The elasticity is also negatively associated with fiscal neutrality; thus, as the elasticity increases, the degree of fiscal neutrality decreases. An advantage of using the elasticity is that it facilitates interstate and longitudinal comparisons of distributions because it is based upon percentage changes.[42] The elasticity is a more appropriate measure for education finance studies in some cases, particularly since property value is taken as the independent variable. This is because the elasticity is not affected by equal proportional changes such as those caused by inflation, while the slope is sensitive to such changes. Thus, the elasticity is the most appropriate measure, especially in longitudinal studies where inflation is likely to affect the data.[43]

Evaluation of Regression Models

The aforementioned regression analysis also calculated t-statistics for each year and for all three regression models (linear, quadratic, and cubic). The t-statistics were calculated in order to determine which regression model most accurately described the relationship between funding per student and property wealth per student. The .05 level of significance was utilized in these tests in determining which model was statistically significant. In addition, probability values were reported for the t-statistics as a further indication of the relative significance of each model in each year.

Conclusion

This chapter detailed the methods and analyses that were utilized in this study. The methodology of this education finance study therefore included the application of statistical measures of univariate dispersion in order to assess the horizontal equity of the formula. In addition, this study also employed measures of correlation and regression in order to evaluate the wealth neutrality of the Florida Education Finance Program. The results of the data analysis are presented in the following chapter.

Notes

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[3] Ibid.

[4] Florida Department of Revenue, *Florida Ad Valorem Valuations and Tax Data* (Tallahassee, 1990); Florida Department of Revenue, *Florida Ad Valorem Valuations and Tax Data* (Tallahassee, 1991); Florida Department of Revenue, *Florida Ad Valorem Valuations and Tax Data* (Tallahassee, 1992); Florida Department of Revenue, *Florida Ad Valorem Valuations and Tax Data* (Tallahassee, 1993); Florida Department of Revenue, *Florida Ad Valorem Valuations and Tax Data* (Tallahassee, 1994); Florida Department of Revenue, *Florida Property Valuations and Tax Data* (Tallahassee, 1995); Florida Department of Revenue, *Florida Property Valuations and Tax Data* (Tallahassee, 1996); Florida Department of Revenue, *Florida Property Valuations and Tax Data* (Tallahassee, 1997); Florida Department of Revenue, *Florida Property Valuations and Tax Data* (Tallahassee, 1998); Florida Department of Revenue, *Florida Property Valuations and Tax Data* (Tallahassee, 1999).

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[10] Alexander and Salmon, 235.

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[14] Berne and Stiefel, 19.

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[16] Wood and Thompson, 47.

[17] Thompson, Wood, and Honeyman, 249.

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[19] Berne and Stiefel, 133.

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[22] Walter I. Garms, James W. Guthrie, and Lawrence C. Pierce, *School Finance* (Englewood Cliffs, NJ: Prentice-Hall, 1978), 319.

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[25] Garms, Guthrie, and Pierce, 319-320.

[26] Berne and Stiefel, at 19-20.

[27] Thompson, Wood, and Honeyman, 250.

[28] Berne and Stiefel, 66.

[29] Berne and Stiefel, 20.

[30] Alexander and Salmon, 236.

[31] Berne and Stiefel, 19.

[32] Berne and Stiefel, 133.

[33] Berne and Stiefel, 25.

[34] Berne and Stiefel, 9-28.

[35] Wood and Thompson, 48.

[36] Agresti and Finlay, 319.

[37] Berne and Stiefel, 27.

[38] Alexander and Salmon, 238.

[39] Agresti and Finlay, 305.

[40] Berne and Stiefel, 28-29.

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[42] Alexander and Salmon, 239.

[43] Berne and Stiefel, 70.

CHAPTER 4
RESULTS

Introduction

The present study addressed the horizontal equity and wealth neutrality of the Florida Education Finance Program between the years of 1990-1991 and 1999-2000. In addition, this study examined the nature of the relationship between funding per student and wealth per student to determine whether it was linear, quadratic, or cubic. Finally, this study identified several policy changes and adjustments to the Florida Education Finance Program that may have been associated with the observed changes in equity. The previous chapter included a discussion of the methods that were utilized to measure the equity of the formula. This chapter presents the results of the analysis beginning with the measures of horizontal equity and continuing with the measures of wealth neutrality.

Measures of Horizontal Equity

The horizontal equity of the Florida Education Finance Program (FEFP) was measured by comparing the levels of state and local funding among the 67 school districts over a period of 10 years. The purpose of this analysis was to determine whether pupils who were equal in their circumstances were receiving equal treatment by the state as measured by the amount of funding per pupil. The analysis of horizontal equity utilized a number of measures of univariate dispersion that were defined in the previous chapter. These measures included the mean, median, range, restricted range, federal range ratio, variance, standard deviation, coefficient of variation, relative mean deviation, McLoone index, Gini coefficient, and standard deviation of logarithms. The following sections describe the results of the analysis for each measure of horizontal equity, and the results for each measure are presented at the end of this chapter in Table 1.

Mean

The mean (or arithmetic average) amount of state and local funding per weighted full-time equivalent (WFTE) student increased from $3,193.81 in 1990-1991 to $3,915.38 in 1999-2000. Thus, the mean increased by $721.58 over the ten-year period, which represented an increase of 22.6% from 1990-1991. The mean amount of funding per WFTE actually decreased to $3,097.13 from 1990-1991 to 1991-1992, and although the mean amount of funding in 1992-1993 ($3,108.64) was higher than it was in the previous year, this figure was still lower than the 1990-1991 average for all 67 school districts.[1] However, the mean did increase consistently for each subsequent year after 1992-1993. While the mean in itself does not serve as an indicator of equity, it does provide a meaningful context for a discussion of changes in equity during these years.

Median

The median value of the distribution is a useful measure of central tendency in that it reduces the effect of outliers. In this study, the median value was slightly lower than the mean for each of the years, thus suggesting that the distribution is slightly skewed. However, the median closely followed the same general trend that was observed in the mean values from year to year. Overall, the median amount of funding per student increased by $698 between 1990-1991 and 1999-2000. Figure 1 illustrates the mean and median values for each year of this study.

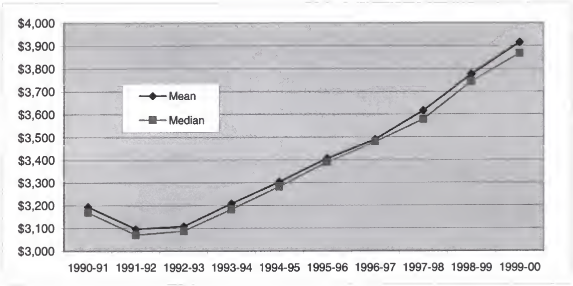

Figure 1: Mean and Median Expenditures per Pupil

Range

The range, which consists of the arithmetic difference between the highest and lowest points in the distribution, did not follow a consistent trend during the 10 years that were the focus of this study. A smaller range is interpreted as a sign of greater equity, indicating a minimal difference between the funding received by districts at the top and bottom of the distribution. The range increased each year between 1990-1991 and 1994-1995, from $659 to $771, suggesting a decrease in horizontal equity over those years. However, the range decreased each year between 1994-1995 and 1997-1998, from $771 to $623, suggesting a trend toward greater horizontal equity during that time. This trend apparently reversed itself in 1998-1999, when the range increased to $677; and in 1999-2000, the range increased even more dramatically to $1,048. The range of the FEFP was greater in 1999-2000 than it was in 1990-1991, suggesting that the FEFP may have become less horizontally equitable during this time. However, the range by itself does not present a completely accurate measure of the equity of a distribution. For this reason, other measures of horizontal equity were utilized in this study.

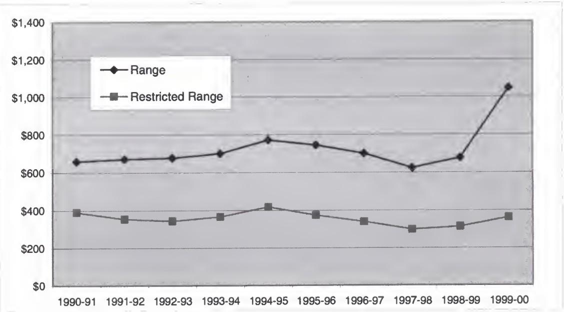

Figure 2: Range and Restricted Range of Expenditures per Pupil

Restricted Range

As stated in the previous chapter, the restricted range consists of the arithmetic difference between the observations at the 95th and 5th percentiles of the distribution. This measure is useful in that it eliminates any extreme values in the distribution. Although the restricted range was predictably much smaller than the range in this study, the restricted range also exhibited some fluctuations during the years that were studied. Overall, the restricted range for the FEFP decreased from $391 in 1990-1991 to $363 in 1999-2000. However, the restricted range fluctuated somewhat over the course of this time period. The restricted range reached its highest value in 1994-1995, when the difference between the 95th and 5th percentiles of the distribution was $419. The lowest value of the restricted range was observed in 1997-1998, when the difference was only $299. It is perhaps interesting to note that while the simple range increased over the ten-year period, the restricted range decreased slightly during the same time period. In this sense, these two measures seem to contradict one another. Figure 2 illustrates the trends that were observed in the range and restricted range.

Federal Range Ratio

The federal range ratio is calculated by dividing the restricted range by the amount of funding per student at the 5th percentile of the distribution. A federal range ratio that is close to zero indicates an equitable distribution. In the present study, the federal range ratio decreased from 0.13 in 1990-1991 to 0.10 in 1999-2000. This means that the school district at the 95th percentile of the distribution received only 13% more funding than the school district at the 5th percentile in 1990-1991 and only 10% more in 1999-2000. Although the federal range ratio decreased relatively consistently during the 10 years of the study, it did increase slightly in several years. The standards set by the U.S. government suggest that any value less than 0.25 for the federal range ratio implies that the distribution is equitable.[2] Thus, the values calculated for the federal range ratio in this study indicate that the FEFP indeed provides an equitable distribution.

Variance

The variance is a measure of the degree to which the data are dispersed about the mean. In education finance, a higher variance indicates a greater degree of inequity because there is greater variation between the wealthiest and the poorest school districts. Between 1990-1991 and 1999-2000, the variance ranged from a low of 9004 in 1992-

1993 and a high of 17285 in 1995-1996. Although the variance has decreased somewhat consistently since 1995-1996, it did increase again in 1999-2000 to a value of 14152. Thus, the variance does not indicate a clear trend in the equity of the FEFP within this specific time period. Because the variance is not expressed in the same unit as the original data, it is somewhat difficult to interpret. For this reason, the standard deviation was also reported, as explained in the following section.

Standard Deviation

The standard deviation is calculated by taking the square root of the variance; thus, like the variance, the standard deviation is also a measure of the dispersement of the data. However, the standard deviation is more easily interpreted than the variance because the standard deviation is reported in the same units as the original data. In the present study, the standard deviation ranged between $116 and $161, with its lowest value occurring in 1997-1998 and its highest value in 1999-2000. The value for the standard deviation was also high in 1995-1996 ($137) and 1994-1995 ($132). Over the ten-year period that was the focus of this study, the standard deviation showed a net increase of $36, although there was no consistent trend that was observed during this time period. The standard deviation therefore suggests that there was less horizontal equity in the fiscal years of 1999-2000, 1995-1996, and 1994-1995. However, it is important to remember that the standard deviation is based upon an assumption that the distribution is normal, while this distribution is not quite normal in shape. Figure 3 depicts the standard deviation for each year since this measure of variation is more easily interpreted than the variance itself.

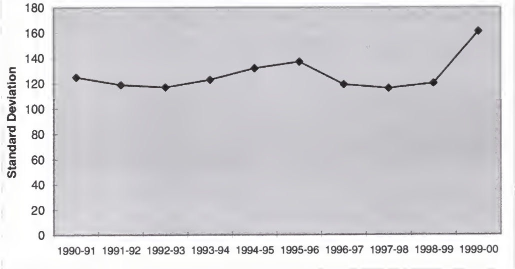

Figure 3: Standard Deviation of Expenditures per Pupil

Coefficient of Variation

Calculation of the coefficient of variation consists of dividing the standard deviation by the mean value of the distribution. This measure remained fairly consistent over the ten-year period, ranging between 0.0287 and 0.0383. The net change between 1990-1991 and 1999-2000 was -0.0019, which suggests a small net increase in equity. However, it should be noted that this measure fluctuated in both directions during these years. The greatest value of the coefficient of variation, indicating the least amount of horizontal equity, was observed in 1995-1996, and the lowest value was observed in 1998-1999. The coefficient of variation ranges between zero and one, with a value of zero indicating perfect equity. Therefore, these results generally indicate a high degree of equity because they are so close to zero, and they are especially meaningful considering that the coefficient of variation is not influenced by equal percentage increases and thus is most appropriate for longitudinal studies such as this one.

Relative Mean Deviation

The relative mean deviation is another measure of univariate dispersion and is calculated by taking the sum of the distances of each point in the distribution from the mean and dividing that figure by the total amount of funding in the distribution. The relative mean deviation ranged in value from a low of 0.0240 in 1992-1993 to a high of 0.0333 in 1995-1996. The relative mean deviation in the most recent year was 0.0251. This was slightly lower than it was in the first year of the study, when the relative mean deviation was 0.0262, suggesting a slight increase in equity over the ten-year period. Furthermore, the relative mean deviation was slightly higher in the most recent year than it was in the prior year, suggesting a recent trend toward increased equity in the FEFP.

McLoone Index

The McLoone index measures the degree of inequity that is experienced by the school districts in which the level of funding is below the median for the state funding distribution. Values of the McLoone index that approach 1.0 indicate a high degree of equity for the districts below the median. According to this standard, the FEFP exhibited high levels of equity as measured by the McLoone index, with values ranging between 0.97 and 0.99 for each year that was examined in this study. Furthermore, the McLoone index was greater in 1999-2000 than it was in 1990-91, again suggesting that the equity of the FEFP has increased during these 10 years. Figure 4 illustrates the results of the McLoone Index across the ten-year period.

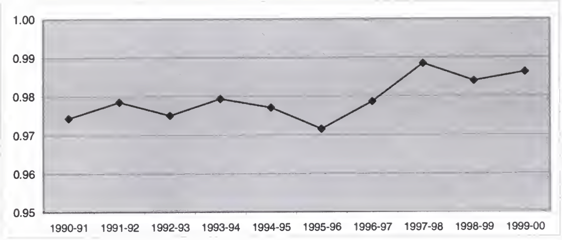

Figure 4: McLoone Index

Gini Coefficient

The Gini coefficient is another measure of equity that can be applied to education funding formulas. The Gini coefficient ranges between zero and one, with a value of zero indicating perfect equity and a value of one indicating perfect inequity. In this analysis, the value of the Gini coefficient ranged from 0.0161 to 0.0217, with a generally decreasing trend over time. These values are extremely low and very close to zero, which implies that the FEFP was characterized by a high degree of equity during the years that were included in this study. The highest value of the Gini coefficient was observed in 1995-1996, and the lowest value was observed in 1998-1999. Over the ten-year period, the Gini coefficient decreased very slightly from 0.0173 to 0.0166, suggesting that the formula has remained very equitable over time. Figure 5 demonstrates the trend that was displayed by the Gini coefficient.

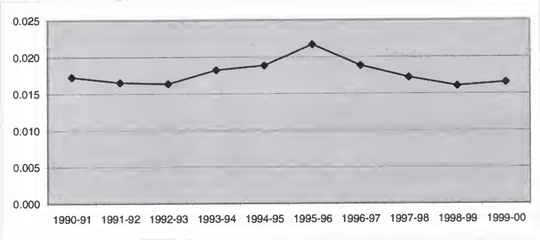

Figure 5: Gini Coefficient

Standard Deviation of Logarithms

The standard deviation of logarithms, another measure of horizontal equity, also ranges between zero and one, with a value of zero being the most equitable. The standard deviation of logarithms remained fairly constant between 1990-1991 and 1999-2000, ranging between 0.0285 and 0.0381. There was a net change of –0.0019, indicating a slight increase in equity over the ten-year period. The highest value of the standard deviation of logarithms was observed in 1995-1996, and the lowest value occurred in 1998-1999. The relatively low values of the standard deviation of logarithms suggest that the FEFP provided an equitable distribution of funds among Florida school districts during the years that were the focus of the study and that there was a trend towards greater equity over this time period.

Measures of Wealth Neutrality

The wealth neutrality of the Florida Education Finance Program was defined in terms of the relationship between the amount of funding per student and the amount of property wealth per student for each school district. The measures that were utilized in the analysis of this relationship consisted of the correlation, slope, and elasticity. These measures were used for each of three regression models in order to facilitate a determination of whether the relationship in question was linear, quadratic, or cubic in nature. Furthermore, a statistical test was performed on these measures in order to ascertain which model was statistically significant. The results of this analysis are discussed in the following sections and are presented in Table 2.

Correlation

The simple linear correlation of the relationship between property wealth per pupil and funding per pupil among the 67 school districts varied considerably during the ten-year period that was the focus of this study. Between 1990-1991 and 1998-1999, the simple correlation stayed within the range of 0.64 and 0.75, although it decreased substantially to 0.46 in 1999-2000. The net change over the ten-year period was –0.21, suggesting that the relationship between property wealth per student and funding per student decreased over time. The value of R^2, which indicates the proportion of variance in funding per student that can be explained by the variance in property wealth per student, ranged between 0.21 and 0.57, with the lowest value occurring in 1999-2000 and the highest value in 1996-1997. These values suggest that the FEFP exhibited the greatest wealth neutrality in 1999-2000 and the least in 1996-1997.

Separate correlations were calculated when the quadratic and cubic regression models were evaluated. These correlations are shown in Table 2. The correlations for the quadratic models were all higher than those for the linear models; however, the correlations for the cubic models were hardly distinguishable from those for the quadratic models. The squared correlation, or proportion of explained variance, was also higher for the quadratic models, suggesting that the relationship between property wealth per student and funding per student may be stronger than the linear model suggests. However, as discussed in the previous chapter, the correlation is not necessarily the most accurate indicator of wealth neutrality. Indeed, a funding formula may be so comprehensive that its design is intended to create a very tight relationship with a slope that approaches zero in order to ensure an equitable distribution. The following section discusses the slope as a measure of wealth neutrality.

Slope

The slope of the relationship between funding per pupil and property wealth per pupil provides an indication of the magnitude of the relationship. The slope is technically defined as the amount of change in the dependent variable that is associated with one unit of change in the independent variable. In studies of education finance, a slope that is close to zero suggests that there is hardly any difference in the amount of funding per student for school districts that have varying levels of property wealth per student.

It is arguable that the slope is actually more important than the correlation in measuring the equity of a distribution, since a particular funding formula may have a strong correlation but a very small slope. In such an instance, although the relationship is very tight, the differences in funding among districts with very different levels of wealth are so small that the high correlation is inconsequential. The Florida Education Finance Program is one example of a state funding formula that is designed to be so comprehensive that a tight relationship would be expected, since so many variables are taken into consideration, even though the slope would be expected to be very close to zero.

The results of this study indicate that the slope of the relationship between funding per student and property wealth per student is indeed very close to zero. The slope ranged from 0.0005 to 0.0008 for the linear model, suggesting that the relationship between these two variables is very slight in magnitude. Thus, even though the correlation between funding per student and wealth per student is relatively strong, the amount of change in the funding per student that is associated with change in property wealth per student is almost equal to zero. These values of the slope suggest that the FEFP is indeed highly equitable. The slopes for the quadratic model are even smaller, with the highest value in the ten-year period equaling 0.000000002.

Elasticity

The elasticity is very similar to the slope as a measure of equity in education finance in that it also measures the magnitude, rather than the strength, of the relationship. However, the elasticity is based upon percentage changes instead of absolute value changes; thus, the elasticity facilitates comparisons within longitudinal studies in which the whole distribution might increase with inflation. In the present study, the elasticity measures also revealed a high degree of equity in the FEFP. The values ranged from a low of 0.0286 in 1999-2000 to a high of 0.0487 in 1995-1996. As with the slope, these values were even smaller when calculated for the quadratic model, with the elasticity never exceeding 0.0000001. Thus, the elasticity also suggests a high degree of wealth neutrality within the FEFP distribution.

Evaluation of Quadratic and Cubic Regression Models

In order to determine whether the relationship between funding per student and property wealth per student was linear, quadratic, or cubic, each of these regression models was analyzed statistically using a 0.05 level of confidence. The t-statistics and probability values were calculated for each model and for each year. The quadratic model yielded significant t-statistics for all years except 1995-1996 and 1999-2000, suggesting that the relationship between funding per student and wealth per student that exists within the FEFP distribution is most often quadratic in nature. This result is logical considering the many adjustments in the FEFP that provide supplemental assistance to the poorest districts, thus creating a nonlinear relationship between the variables in question. However, the t-statistics were not significant for the cubic model in any of the years that were studied, indicating that the cubic model is not appropriate for this particular relationship. Therefore, the quadratic model appears to provide the most accurate description of the relationship that exists within the FEFP between property wealth per student and funding per student.

It is also interesting to note that the squared correlations for the quadratic models were higher in every year than the squared correlations for the linear models. In other words, the proportion of explained variance was greater for the quadratic models, which further suggests that the relationship between funding per student and wealth per student is not a simple linear relationship.

Interpretations of Results

The use of multiple measures of both the horizontal equity and the wealth neutrality of the FEFP was intended to provide a broader and more accurate depiction of the equity of the funding formula. These measures must be evaluated together in order to determine which years were characterized by the most equitable distribution of funds. The following paragraphs summarize and interpret the results of this analysis in terms of the horizontal equity and the wealth neutrality of the FEFP.

Overall, the measures of horizontal equity suggest that the FEFP provides a relatively equitable distribution of funds to students in each of the 67 school districts. However, there are some years in which the distribution appears to be more or less equitable than in other years. For example, the coefficient of variation, relative mean deviation, and standard deviation of logarithms all increased dramatically in 1995-1996, suggesting that some of the adjustments to the FEFP in that year may have been disequalizing. Figure 6 illustrates these three measures across the ten-year period.

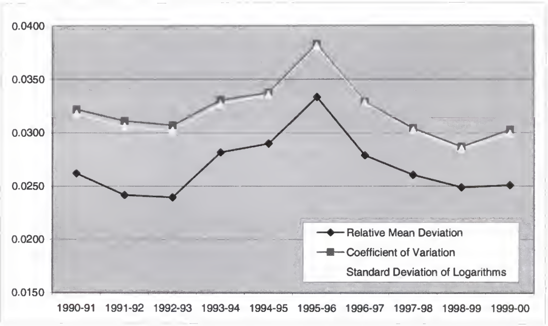

Figure 6: Three Measures of Horizontal Equity

The Gini coefficient also peaked in 1995-1996, further suggesting that the FEFP contained certain adjustments in this year that adversely affected the horizontal equity of the formula. The McLoone Index reached its lowest value in 1995-1996, thus contributing to the finding that the horizontal equity of the FEFP was lowest in that year.

In terms of wealth neutrality, the correlations for both linear and quadratic models appeared to be the highest in 1997-1998 and 1998-1999. However, the slopes and elasticities were highest in 1994-1995 and 1995-1996. Therefore, there may have been changes in the FEFP calculation before or after those years that influenced the wealth neutrality of the formula. However, the slopes and elasticities were very close to zero in all years, illustrating that whatever relationship exists between these two variables is very minute in scope. Overall, the quadratic regression model appeared to offer the most appropriate depiction of the relationship between funding per student and property wealth per student. The following section discusses the adjustments to the FEFP between 1990-1991 and 1999-2000 and identifies the policy changes that may have caused the aforementioned changes in the horizontal equity and wealth neutrality of the distribution.

Changes in the Florida Education Finance Program: 1990-2000

Each year, the Florida Legislature makes adjustments to the Florida Education Finance Program in the hopes of improving its equity. This is done by adding new components to the formula, adjusting the terms of existing components, or removing any components that appear to have a disequalizing effect. The legislature has made a number of adjustments between the 1990-1991 fiscal year and the 1999-2000 fiscal year, and these changes have each had an effect on the equity of the FEFP, whether positive or negative. This section will discuss the evolution of the FEFP during this time and will identify the policy changes that seemed to affect the equity of the formula.

The Florida Legislature has varied its methods of calculating the FEFP, even in terms of which major educational programs were included in the FEFP calculation. Between 1990-1991 and 1996-1997, the FEFP included K-12 students and adult students for both the regular and summer terms of school. In 1997-1998 and 1998-1999, the FEFP included only K-12 students, not adult students, but still covered both the regular and summer terms. Beginning in 1997-1998, the adult education programs were funded within the Division of Workforce Development instead of within the FEFP. In 1999-2000, the FEFP covered only K-12 students in the regular term and not the summer term. The legislature instead shifted the funding for summer school programs to a new Class Size Reduction/ Supplemental Instruction categorical program.

The calculation of the program cost factors that were utilized in the FEFP also varied from year to year, as presented in Table 3. Some cost factors have been eliminated entirely, such as the lifelong learning cost factor and the dropout prevention cost factor. The cost factors for mainstreamed students were also eliminated in 1997-1998. The number of program cost factors was substantially reduced in 1996-1997 when the legislature consolidated the existing cost factors, reducing the total number from 53 to 35. This number was further reduced in 1997-1998, when the program cost factors for 15 exceptional student education programs were consolidated into five levels of support. The program cost factors for the English for Speakers of Other Languages program were also consolidated into a single cost factor in 1999-2000, and vocational programs for grades 7-12 were similarly compressed into a single cost factor in 1997-1998.

The Base Student Allocation (BSA) is one of the most fundamental components of the FEFP calculation, since the BSA is multiplied by the number of weighted full-time equivalent students. Thus, variations in the BSA have a significant effect on the formula distribution. Although the BSA should theoretically increase each year because of inflation, the BSA actually decreased in 1991-1992 and 1992-1993, and it did not surpass the 1990-1991 level until 1995-1996. Figure 7 illustrates the trend in the BSA between 1990-1991 and 1999-2000 as compared to the average amount of funding per WFTE.

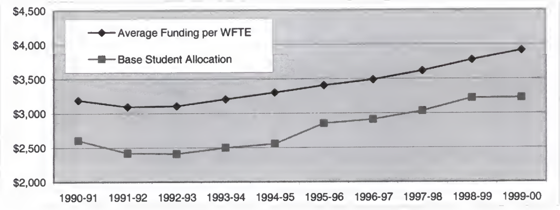

Figure 7: Base Student Allocation and Average Funding per WFTE

The District Cost Differential (DCD) is another major component of the FEFP that varies from year to year. In 1990-1991, the legislature calculated the DCD using a floor of 1.0 for each district, meaning that no district could have a factor less than 1.0. In 1991-1992, each school district was assigned to a region of the state that corresponded with the state judicial circuits, and all districts in each region were assigned the highest value within that region. This method was again used in 1992-1993 but was discontinued in 1993-1994, and in 1995-1996, the legislature eliminated the floor of 1.0 for each district, thus allowing some districts to have a factor that was lower than 1.0.

The calculation of the Declining Enrollment allocation remained the same throughout all years of the study, although the amount of the allocation varied from year to year. This calculation, which assists those districts in which student enrollment declined from the prior year, has always consisted of providing the district with funding for 50% of the decline in student enrollment, using the funding levels from the prior year. The statewide total for this allocation ranged from $249,295 in 1990-1991 to $5,271,785 in 1995-1996.

There have been some formula adjustments that have been added or eliminated since 1990-1991. For example, the Rapid Growth Adjustment, the Math/Science Course Enrollment Incentive, and the Salary Improvement Incentive were all included in the 1990-1991 FEFP but have not been included since then. Others adjustments, such as the Administrative Redirection adjustment, the Remediation Reduction Incentive, and the Dropout Prevention Incentive, were introduced within this time period and were later eliminated. Other components of the FEFP have been added since 1990-1991 and still remain in place, such as the Discretionary Tax Equalization adjustment and the Hold Harmless adjustment. Table 4 provides a detailed list of each component and for which years it was included in the FEFP calculation.

The categorical programs and special allocations that have been added to the base FEFP calculation have also changed significantly over the past 10 years. The number of categorical programs has been dramatically reduced, although in 1999-2000 there were still six categorical programs with $1,222,023,090 in combined funding. Table 5 outlines the various categorical programs and special allocations and specifies in which years they were included in the final FEFP distribution.

In order to identify which policy changes and adjustments to the funding formula might have caused an increase or decrease in equity, it is first necessary to identify the years in which the equity of the formula was the highest and lowest. Overall, the 1997-

1998 fiscal year appeared to have the greatest amount of equity; this year was characterized by more horizontal equity than all other years on the measures of the range, restricted range, federal range ratio, standard deviation, and McLoone Index. Closely following this year was the 1998-1999 fiscal year, in which the coefficient of variation, standard deviation of logarithms, and Gini coefficient each indicated greater equity than all other years of the study. Conversely, the lowest degree of horizontal equity was observed in the fiscal year 1995-1996, which displayed the least equitable measures of the relative mean deviation, McLoone index, coefficient of variation, standard deviation of logarithms, and Gini coefficient. The 1994-1995 fiscal year was also relatively inequitable as compared to the other years of the study; in this year, the restricted range and federal range ratio were observed at their least equitable values within this study.

While a more rigorous statistical analysis would be required to accurately pinpoint the specific adjustments and circumstances that caused these specific years to be more or less equitable than the others, it is still possible to make a preliminary identification of policy changes that coincided with these shifts in the equity of the formula, thus providing an opportunity to conduct further research into these policies. Therefore, the following paragraphs identify certain adjustments to the FEFP that occurred during these years of relatively high and low equity.

The FEFP demonstrated the lowest degree of equity in 1995-1996, and there were several differences in the formula that occurred in this year. First, the Base Student Allocation increased substantially more in this year than in any other year studied. The increase in 1995-1996 was 11.6%, while the average percentage change from one year to the next during the ten-year period was 2.0%. The Hold Harmless component of the formula, which had been introduced in the previous year, provided for a minimum of a 2.0% increase in funding per WFTE, and the total amount of funding for this component was $21,829,132. This was the highest level of increase and the highest amount of funding among all years except the 1994-1995 fiscal year, which was also characterized by a lower degree of equity. Since then, the percentage increase that is guaranteed by the Hold Harmless provision has decreased to 1.0%, and the total amount was as low as $193,194 by the 1999-2000 year.

Additionally, the Declining Enrollment supplement was unusually high in 1995-1996. While the ten-year average was approximately $1.4 million, the total declining enrollment supplement was $5.3 million in 1995-1996. This was partly because the K-8 summer school programs were removed from the formula in this year and were made into a categorical program instead. Thus, the school districts that had a large summer school enrollment received compensation through the declining enrollment supplement for 50% of the decline in FTE students.

The other changes to the formula that were made in 1995-1996 included the Safe Schools allocation, which was introduced in the prior year but was distributed differently in 1995-1996, and the First Grade Class Size Reduction allocation, which was only included in the FEFP in 1995-1996. The Safe Schools allocation had first been incorporated into the FEFP in 1994-1995, when it was distributed based upon each district's total weighted student enrollment. However, the distribution method changed in 1995-1996, when the legislature decided to base 80% of the allocation on annual crime data reported by the Florida Department of Law Enforcement, and only 20% of the allocation was distributed according to district weighted enrollment. In the following year, the distribution method shifted to 67% based upon crime data and 33% based upon weighted enrollment. The First Grade Class Size Reduction allocation was introduced into the FEFP in 1995-1996 and was subsequently converted into the Class Size Reduction categorical program. In 1995-1996, this allocation of $40 million was prorated based upon first grade membership; in the following three years, the Class Size Reduction categorical program increased the total allocation to $100 million dollars.

As mentioned previously, the 1997-1998 fiscal year demonstrated the highest levels of horizontal equity that were observed in this study. There were a number of significant policy changes that were made in this year, the most notable of which was the collapsing of cost factors for exceptional student education. This actually resulted in a decrease in the total number of weighted full-time equivalent students from 2.96 million in 1996-1997 to 2.87 million in 1997-1998. The 1997 Florida Legislature restructured the cost factors used for special education programs and created new cost factors that represented five different levels of support depending upon the severity of the needs of each individual student. This new matrix of services reduced the number of cost factors for special education programs from 15 to 5 and significantly changed the way that funds were distributed for special education students.

The consolidation of cost factors also extended beyond special education programs to dropout prevention programs, English for Speakers of Other Languages, and vocational programs for grades 6-12. For each of these categories, all of the existing cost factors were compressed into a single cost factor, thus further simplifying the program cost factors used in the FEFP. These changes had the end result of reducing the number of program cost factors from 54 to 12 in 1997-1998.

Another adjustment that may have contributed to the high degree of equity that was observed in 1997-1998 was the Disparity Compression Adjustment. Although this adjustment was added to the formula in the previous year, the total amount of the allocation had increased from $32,995,707 in 1996-1997 to $44,455,279 in 1997-1998. Also, the calculation of this adjustment changed slightly in 1997-1998. In 1996-1997, the calculation consisted of the greater of two amounts: the amount necessary to raise a district's funding per FTE student to a level that is equal to one standard deviation below the state average, or the amount necessary to raise the district's funding level 10% closer to the state average. This second condition was changed in 1997-1998 to an amount equal to 97% of the statewide average, and it is reasonable to assume that this adjustment contributed to the higher degree of equity that was observed in 1997-1998.

One other significant change in the FEFP that occurred in this year was the removal of adult education programs from the formula. Instead, adult education programs were funded through the Division of Workforce Development budget. This change resulted in a decrease in the total number of FTE students between 1996-1997 and 1997-1998, from 2.37 million students to 2.30 million students.

This chapter presented the results of the analysis of the horizontal equity and the wealth neutrality of the Florida Education Finance Program. The following chapter will discuss the implications of this study as well as the possibilities for future research into the questions raised by this analysis.

Notes

[1] The decrease in the amount of funding per student in these two years is attributable to the economic recession that took place in Florida during that time.

[2] *U.S. Code*, vol. 20, sec. 7709.

Table 1: Measures of Horizontal Equity

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	Ten Year Change
Mean	$3,194	$3,097	$3,109	$3,209	$3,304	$3,406	$3,490	$3,617	$3,777	$3,915	$722
Median	$3,169	$3,071	$3,088	$3,183	$3,283	$3,390	$3,479	$3,578	$3,745	$3,867	$698
Range	$659	$671	$677	$700	$771	$744	$700	$623	$677	$1,048	$389
Restricted Range	$391	$355	$345	$368	$419	$375	$341	$299	$314	$363	-$28
Federal Range Ratio	0.1283	0.1197	0.1159	0.1195	0.1340	0.1154	0.1016	0.0852	0.0857	0.0956	-0.0326
Variance	10438	9157	9004	11196	12533	17285	13503	12355	11876	14152	3714
Standard Deviation	125	119	117	123	132	137	119	116	120	161	36
Coefficient of Variation	0.0322	0.0311	0.0307	0.0331	0.0337	0.0383	0.0329	0.0304	0.0287	0.0303	-0.0019
Relative Mean Deviation	0.0262	0.0242	0.0240	0.0282	0.0290	0.0333	0.0279	0.0261	0.0249	0.0251	-0.0011
McLoone Index	0.97	0.98	0.98	0.98	0.98	0.97	0.98	0.99	0.98	0.99	0.01
Gini Coefficient	0.0173	0.0166	0.0164	0.0182	0.0189	0.0217	0.0188	0.0173	0.0161	0.0166	-0.0007
Standard Deviation of Logarithms	0.0318	0.0306	0.0302	0.0327	0.0336	0.0381	0.0328	0.0302	0.0285	0.0299	-0.0019

Table 2: Measures of Wealth Neutrality

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00
Squared Correlation (1)	0.4511	0.4066	0.4474	0.4745	0.5079	0.4949	0.5654	0.5380	0.4586	0.2141
Correlation (1)	0.6717	0.6377	0.6689	0.6889	0.7126	0.7035	0.7519	0.7335	0.6772	0.4628
Slope (1)	0.0007	0.0006	0.0007	0.00075	0.00084	0.00085	0.00078	0.0007	0.0006	0.0005
Elasticity (1)	0.0435	0.0397	0.0416	0.0441	0.0482	0.0487	0.0438	0.0395	0.0368	0.0286
T-value (1)	7.31	6.67	7.25	7.66	8.19	7.98	9.20	10.05	7.42	4.21
P- value (1)	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
Squared Correlation (2)	0.5536	0.5062	0.5420	0.5481	0.5558	0.5203	0.5936	0.6205	0.5588	0.2455
Correlation (2)	0.7440	0.7115	0.7362	0.7403	0.7455	0.7213	0.7705	0.7877	0.7475	0.4955
Slope (2)	2.15E-09	1.84E-09	1.96E-09	1.86E-09	1.55E-09	1.12E-09	1.00E-09	1.19E-09	1.42E-09	9.02E-10
Elasticity (2)	1.30E-07	1.17E-07	1.21E-07	1.09E-07	8.93E-08	6.44E-08	5.67E-08	6.71E-08	8.31E-08	4.81E-08
T-value (2)	3.832	3.593	3.636	3.228	2.628	1.841	2.109	3.174	3.810	1.630
P- value (2)	0.0003	0.0006	0.0006	0.0020	0.0107	0.0702	0.0389	0.0023	0.0003	0.1073
Squared Correlation (3)	0.5680	0.5069	0.542	0.5499	0.5597	0.5213	0.5936	0.6205	0.5612	0.2457
Correlation (3)	0.7537	0.7120	0.7362	0.7416	0.7481	0.7220	0.7705	0.7877	0.7491	0.4957
Slope (3)	-5.58E-15	-9.66E-16	6.60E-17	-2.02E-15	-2.93E-15	-1.42E-15	-2.18E-17	-5.86E-17	-1.14E-15	-3.29E-16
Elasticity (3)	-3.37E-13	-6.13E-14	4.08E-15	-1.19E-13	-1.69E-13	-8.15E-14	-1.23E-15	-3.31E-15	-6.71E-14	-1.75E-14
T-value (3)	-1.45	-0.29	0.02	-0.51	-0.74	-0.36	-0.01	-0.03	-0.59	-0.12
P-value (3)	0.1523	0.7742	0.9858	0.6123	0.4600	0.7208	0.9943	0.9779	0.5577	0.9042

Table 3: Program Cost Factors for the Florida Education Finance Program

	EDUCATIONAL PROGRAM	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00
Basic	K-3	1.031	1.018	1.014	1.017	1.029	1.041	1.049	1.054	1.057	1.057
Programs	4-8	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
	9-12	1.196	1.213	1.225	1.224	1.210	1.198	1.190	1.169	1.138	1.115
	K-3 Mainstream	2.062	2.036	2.028	2.034	2.058	2.082	2.098	-	-	-
	4-8 Mainstream	2.000	2.000	2.000	2.000	2.000	2.000	2.000	-	-	-
	9-12 Mainstream	2.392	2.426	2.450	2.448	2.420	2.396	2.380	-	-	-
Exceptional	Educable Mentally Handicapped	2.161	2.149	2.184	2.214	2.226	2.195	1.979	-	-	-
Programs	Trainable Mentally Handicapped	2.990	2.954	2.922	2.899	2.934	2.977	3.111	-	-	-
	Physically Handicapped	3.667	3.569	3.453	3.398	3.285	3.285	3.111	-	-	-
	Phys/Occupational Therapy P/T	9.033	9.049	9.527	10.664	11.759	12.971	12.690	-	-	-
	Speech/Language/Hearing P/T	5.520	5.478	5.476	5.392	5.312	5.313	5.333	-	-	-
	Speech/Language/Hearing	3.337	3.200	3.176	3.130	3.103	2.992	2.777	-	-	-
	Visually Handicapped P/T	13.856	14.506	15.145	15.773	16.168	16.687	17.069	-	-	-
	Visually Handicapped	4.657	4.417	4.353	4.309	4.558	4.660	5.333	-	-	-
	Emotionally Handicapped P/T	2.793	3.725	3.740	3.851	3.859	3.878	4.287	-	-	-
	Emotionally Handicapped	2.837	2.821	2.812	2.807	2.740	2.751	2.777	-	-	-
	Specific Learning Disability P/T	3.113	3.001	2.914	2.816	2.766	2.769	2.777	-	-	-
	Specific Learning Disability	2.117	2.078	2.049	1.998	1.939	1.920	1.979	-	-	-
	Gifted P/T	1.951	1.918	1.896	1.841	1.785	1.747	1.710	-	-	-
	Hospital/Homebound P/T	11.680	11.505	11.611	12.114	12.606	12.522	12.690	-	-	-
	Profoundly Handicapped	4.479	4.417	4.396	4.386	4.391	4.357	4.287	-	-	-
	Support Level 1	-	-	-	-	-	-	-	1.341	1.341	1.341
	Support Level 2	-	-	-	-	-	-	-	2.072	2.072	2.072
	Support Level 3	-	-	-	-	-	-	-	3.287	3.287	3.287
	Support Level 4	-	-	-	-	-	-	-	4.101	4.101	4.101
	Support Level 5	-	-	-	-	-	-	-	6.860	6.860	6.860
At-Risk	Dropout Prevention	1.731	1.707	1.656	1.615	1.571	1.495	1.474	1.438	1.399	-
Programs	Teenage Parent	-	-	-	-	-	1.495	1.474	1.438	1.399	-
	Educational Alternatives 9-12	-	-	-	-	-	-	-	1.169	1.138	-
	ESOL/ Intensive Eng./ K-3	1.695	1.692	1.644	1.600	1.478	1.311	1.280	-	-	-
	ESOL/ Intensive Eng./ 4-8	1.732	1.690	1.679	1.617	1.509	1.262	1.280	-	-	-

Table 3--continued

	ESOL/ Intensive Eng./ 9-12	1.773	1.748	1.649	1.454	1.318	1.310	1.280	-	-	-
	ESOL	-	-	-	-	-	-	-	1.245	1.201	1.211
Vocational 7-12 Programs	Agriculture	1.716	1.711	1.728	1.710	1.676	1.612	1.513	-	-	-
	Business and Office	1.239	1.224	1.229	1.235	1.250	1.254	1.248	-	-	-
	Distributive	1.134	1.124	1.112	1.124	1.140	1.176	1.174	-	-	-
	Diversified	1.237	1.185	1.185	1.204	1.231	1.241	1.232	-	-	-
	Health	1.606	1.563	1.513	1.439	1.345	1.347	1.333	-	-	-
	Public Service	1.157	0.907	0.930	0.969	1.020	1.076	1.119	-	-	-
	Home Economics	1.278	1.274	1.261	1.247	1.254	1.272	1.277	-	-	-
	Industrial	1.764	1.752	1.746	1.740	1.758	1.764	1.743	-	-	-
	Exploratory	1.308	1.303	1.276	1.238	1.222	1.215	1.198	-	-	-
	Vocational Mainstream	2.774	2.737	2.325	1.979	1.675	1.860	1.966	-	-	-
	Vocational Programs, 7-12	-	-	-	-	-	-	-	1.272	1.240	1.211
Adult Job Prep Programs	Agriculture	1.617	1.559	1.537	1.455	1.452	1.454	1.477	-	-	-
	Business and Office	1.340	1.329	1.292	1.267	1.267	1.299	1.373	-	-	-
	Distributive	1.404	1.398	1.374	1.354	1.348	1.328	1.293	-	-	-
	Diversified	1.239	0.942	0.877	0.847	0.925	0.932	0.948	-	-	-
	Health	1.729	1.608	1.506	1.429	1.410	1.451	1.488	-	-	-
	Public Service	1.097	1.020	0.959	1.011	1.045	1.113	1.155	-	-	-
	Home Economics	1.560	1.477	1.433	1.383	1.369	1.293	1.265	-	-	-
	Industrial	1.551	1.477	1.418	1.361	1.384	1.421	1.473	-	-	-
Supplemental Vocational Adult Programs	Agriculture	1.322	1.363	1.516	1.614	1.676	1.807	1.477	-	-	-
	Business and Office	1.162	1.142	1.114	1.190	1.272	1.371	1.373	-	-	-
	Distributive	0.861	0.795	0.806	0.827	0.959	1.038	1.293	-	-	-
	Health	1.433	1.483	1.454	1.432	1.371	1.442	1.488	-	-	-
	Public Service	1.001	0.989	1.060	1.161	1.237	1.297	1.155	-	-	-
	Home Economics	1.292	1.424	1.367	1.356	1.272	1.290	1.265	-	-	-
	Industrial	1.232	1.294	1.332	1.463	1.573	1.778	1.473	-	-	-
Adult General Programs	Adult Basic	0.805	0.780	0.745	0.721	0.718	0.766	0.802	-	-	-
	Adult Secondary	0.807	0.788	0.763	0.758	0.785	0.853	0.802	-	-	-
	Lifelong Learning	0.726	0.700	0.700	-	-	-	-	-	-	-
	Adult Handicapped	1.614	1.575	1.337	1.140	0.933	0.994	0.962	-	-	-

Table 4: Formula Adjustments, 1990-1991 through 1999-2000

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00
District Cost Differential	X	X	X	X	X	X	X	X	X	X
Declining Enrollment Supplement	X	X	X	X	X	X	X	X	X	X
Sparsity Supplement	X	X	X	X	X	X	X	X	X	X
Extended Day/ Seventh Period	X									
Rapid Growth Supplement	X									
Adequacy Supplement	X									
Math/ Science Incentive	X									
Salary Improvement Incentive	X									
Additional State Allocation		X								
Funding Adjustment		X	X	X						
Discretionary Lottery Funds		X	X	X	X	X	X	X	X	X
Hold Harmless Adjustment					X	X	X	X	X	X
Discretionary Tax Equalization					X	X	X	X	X	X
Safe Schools Allocation					X	X	X	X	X	X
First Grade Class Size Reduction						X	(see categorical program)			
Administrative Redirection							X	X		
Remediation Reduction Incentive							X	X	X	
Disparity Compression Adjustment							X	X	X	X
Dropout Prevention Incentive								X	X	

Table 5: Major Categorical Programs and Special Allocations, 1990-1991 through 1999-2000

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00
K-3 Improvement Program	X									
Compensatory Education	X									
Student Development Services	X									
Library Media Materials	X									
Writing Skills Instruction	X									
School Bus Replacement	X									
School Resource Officers	X									
Science Lab Equipment	X									
Middle Childhood Education	X									
Pre-School Programs	X	X	X	X	X	X	X			
Comprehensive School Construction	X	X	X	X	X	X	X	X	X	X
School Lunch Match	X	X	X	X	X	X	X	X	X	X
Student Transportation	X	X	X	X	X	X	X	X	X	X
Instructional Materials	X	X	X	X	X	X	X	X	X	X
Safe Schools		X	X							
Educational Technology				X	X	X	X	X	X	X
Parent Education					X					
K-8 Summer School						X	X	X	X	
Full Service Schools							X	X		
Class Size Reduction							X	X	X	X
Class Size / Supplemental Instruction										X
Teacher Training										X

CHAPTER 5
DISCUSSION

Introduction

In Chapter 4, the results of the longitudinal analysis of the distributional equity of the Florida Education Finance Program were presented. Chapter 5 discusses these results in more detail and offers several conclusions based upon these results, as well as implications for further research in the equity of education finance. Chapter 5 begins with a general summary of this study, including the research questions and the purpose of the analysis, to be followed by a presentation of the observations and conclusions of the study. This chapter will conclude with a discussion of the implications of this study for future research and practice.

Summary of Research Questions

The equity of education finance formulas has been a topic of significant concern and debate throughout the past century. As evidenced by the Tenth Amendment to the United States Constitution as well as the United States Supreme Court case of *San Antonio v. Rodriguez*,[1] the responsibility for education finance – and for ensuring its equity – clearly rests within each of the fifty states. This responsibility is further enforced by the provisions of many state constitutions requiring the equitable provision of educational opportunity to all students within the state. Consequently, most states have devised complex funding formulas that are designed to distribute funding for education more equitably. Such formulas are intended to address many different aspects of equity. For example, horizontal equity demands that students in the various school districts be treated equitably across the state. On the other hand, wealth neutrality requires that the amount of funding per student that is received by the school district is not dependent upon the amount of property wealth per student in that district.

In the State of Florida, this funding system is presently known as the Florida Education Finance Program. The Florida Education Finance Program (FEFP), which was implemented in 1973, is authorized in Florida Statutes to provide equalization of educational opportunity to public school students in the State of Florida.[2] The FEFP attempts to provide a more equitable distribution of funding by incorporating such factors as the varying cost of living among school districts, the varying costs of different educational programs, the varying ability of school districts to generate local property taxes, and the varying sparsity and dispersion of student populations. These formula adjustments are intended to address the horizontal equity of students across the state as well as the wealth neutrality of the formula towards students from areas of varying property wealth. However, the Florida Legislature makes changes to the FEFP on an annual basis, and thus the equity of the distribution shifts slightly from year to year. The intent of this study was to first examine the horizontal equity and wealth neutrality of the formula over ten years in order to discern any changes in the equity of the formula, to then study the nature of the relationship between property wealth and funding per student, and to identify policy changes that might have been associated with the observed shifts in the equity of the formula. Each of these questions was addressed using the methodology that was outlined in Chapter 3. The results of these research questions, which were presented fully in Chapter 4, as well as some general conclusions, are briefly summarized in the following section of this chapter.

Observations and Conclusions

The previous section contained an overview of the intent of the present study. This section presents a brief summary of the results and observations of the study, which were described in full detail in Chapter 4. First, the horizontal equity of the formula is addressed, and then the wealth neutrality of the formula is discussed. Finally, a discussion of the policy changes and formula adjustments that may have influenced the equity of the formula is presented.

Overall, the horizontal equity of the formula was relatively stable over the ten-year period. Most of the horizontal equity measures indicated a slight increase in the equity of the formula during this time; these included the restricted range, federal range ratio, relative mean deviation, coefficient of variation, standard deviation of logarithms, McLoone Index, and Gini coefficient. The only three measures that showed a decrease in equity over the ten-year period were the simple range, variance, and standard deviation, all of which are influenced by the scale of the distribution and thus are affected by inflation in longitudinal studies. In 1996-1997 and 1997-1998, the horizontal equity of the formula increased on all measures, thus suggesting that the formula was most equitable in these years. However, there were some years in which the horizontal equity of the formula appeared to decrease on most or all measures, especially in 1993-94, 1994-95, and 1995-96. Still, there was a general increase in the horizontal equity of the formula between 1990-1991 and 1999-2000, which indicates that the funding formula provides a relatively equitable distribution across the 67 school districts and also that the degree of equity is improving over time.

The wealth neutrality of the formula also improved between 1990-1991 and 1999-2000. This improvement was observed over the ten-year period on all of the measures of wealth neutrality that were utilized in this study, including the correlation, slope, and elasticity. The individual years that demonstrated improvement on all measures were 1991-1992 and 1999-2000, while a decrease in wealth neutrality was observed for all measures in 1992-1993 and 1997-1998. It is perhaps interesting to note that in several years, opposite trends were observed in the measures of horizontal equity and of wealth neutrality, thus illustrating the difficulty of achieving both forms of distributional equity simultaneously.

There were a number of changes and adjustments to the FEFP that were made during these years that may have affected the horizontal equity and wealth neutrality of the formula. Policy changes that occurred in the year with the lowest degree of horizontal equity, 1995-1996, included a substantial increase in the Base Student Allocation, a large allocation for the Hold Harmless adjustment, an unusually high allocation for the Declining Enrollment supplement, and special allocations such as the Safe Schools allocation and the First Grade Class Size Reduction allocation. Some of the policy changes that occurred in the year with the greatest degree of horizontal equity, 1997-1998, included the collapsing of cost factors for exceptional student education, the consolidation of other program cost factors, the Disparity Compression adjustment, and the removal of adult education programs from the FEFP.

The wealth neutrality of the formula appeared to be the highest in 1999-2000, with the correlation, slope, and elasticity all exhibiting the lowest values in this year. Changes in the formula that took place in 1999-2000 include the removal of summer school programs from the calculation of student enrollment, an unusually high appropriation for the Declining Enrollment allocation, providing each district with a minimum of $30,000 for the Safe Schools allocation, and an increase in funding for the Disparity Compression Adjustment. Conversely, the formula demonstrated the least amount of wealth neutrality in 1997-1998, when the correlation between funding per student and property wealth per student was the highest, and in 1990-1991, when the slope and elasticity were highest. There were many adjustments to the FEFP in 1997-1998, as described in the previous paragraph, and while these adjustments may have led to greater horizontal equity, they may also have contributed to a decrease in the wealth neutrality of the formula. In 1990-1991, there were several components that were not included in subsequent years, such as the Rapid Growth Adjustment, the Adequacy Supplement, the Extended Day supplement, the Math/Science Course Enrollment Incentive, and the Salary Improvement Incentive. These components may also have had a disequalizing effect, as evidenced by the high slope and elasticity during that year.

The evaluation of the wealth neutrality of the FEFP also constituted a statistical analysis of the relationship between funding per student and property wealth per student in each district. This analysis revealed that in all but two of the years that were studied, this relationship was quadratic in nature. This could be because the FEFP provides additional assistance to the poorest school districts, which results in a non-linear relationship. However, it is important to note that the magnitude of this relationship is very small; in other words, although there is some change in funding per student that is associated with property wealth per student, the degree of change is very small in proportion to the total amount of funding per student.

Therefore, the general conclusions of this study are that both the horizontal equity and the wealth neutrality of the FEFP are relatively high and are improving with time. There was a marked trend toward greater equity that was observed in both the measures of horizontal equity and of wealth neutrality, although this trend was not necessarily consistent throughout the ten-year period. The shifts in the equity of the formula that were observed in certain years suggest that some formula adjustments may have caused the distribution to become more or less equitable. This study identified certain formula components and policy changes that coincided with improvements or declines in the equity of the formula; however, further research would be necessary in order to fully determine whether or not a causal relationship is present.

This section provided an overview of the observations and conclusions that resulted from this study. In the following section, the implications of this study for future research in education finance will be explored. In addition, possible implications for policy implementation will also be discussed.

Implications

The purpose of this study was to examine the horizontal equity and the wealth neutrality of the Florida Education Finance Program between the years 1990-1991 and 1999-2000 and to identify funding policies and formula adjustments that may have caused the equity of the formula to fluctuate from year to year. The results of the statistical analysis indicated that the FEFP does indeed provide a high degree of horizontal equity and wealth neutrality. Although the equity measures fluctuated in both directions during the ten years that were studied, an overall trend of increased equity was observed for both horizontal equity and wealth neutrality. Thus, the results of this study generally confirm that the FEFP is functioning effectively and is fulfilling its statutory purpose.

While the results of this study do have significant implications for education finance in Florida, there is certainly a need to conduct further research on these issues. There were a number of formula components and adjustments that were identified in this study as possible causes of the observed fluctuations in the equity of the formula. However, further research would be necessary in order to make any definitive statements about the effects of the policies and adjustments that were identified and discussed in this study. Thus, now that a preliminary identification has been made, future studies could focus on a detailed statistical analysis of these individual formula components in order to determine which ones had the most substantial positive or negative impact upon the overall equity of the formula.

While this study presented a thorough analysis of the horizontal equity and wealth neutrality of the FEFP, further investigation into the adequacy of the formula is warranted. As mentioned in Chapter 2, an increasing amount of attention is currently being focused on the adequacy of education finance rather than solely on issues of equity. Such a study would prove to be very challenging, if only because the concept of adequacy is so difficult to define and measure. However, this issue is particularly relevant in Florida given the 1998 amendment to the state constitution providing that it is “a paramount duty of the state to make adequate provision for the education of all children" including a "uniform, efficient, safe, secure, and high quality system of free public schools."[3] Thus, there is a clear need for further examination of the adequacy of the FEFP in light of this state constitutional provision.

Another potential area for further research pertains to the equity of education finance within school districts, not only among all of the school districts in the state. Although it is certainly important and essential to ensure that all of the school districts in the state are receiving equitable treatment from the state, it is just as essential to ensure that students within each district are being treated equitably as compared to students in other classes, other programs, and other schools in the same district. Again, such a study would prove to be very complicated, most importantly because of the difficulty in obtaining reliable and comparable data. Thus, while this study draws important conclusions about inter-district equity, there is a need for further examination of intra-district (or inter-school) equity within the State of Florida.

The issue of increased accountability for taxpayer dollars has also affected the financing of public education in recent years, particularly in the State of Florida. There has been a national movement towards greater accountability in education, and in Florida, this trend has resulted in several policy initiatives. One such initiative is the Florida School Recognition Program, which is intended to provide greater autonomy and financial awards to public schools with sustained or significantly improved student performance as defined by a number of measures.[4] However, there are many questions about the effectiveness – and the fairness – of such performance-based funding programs in the realm of education. These issues also merit further research in terms of their effect on the equity of the education finance system.

Notes

[1] *San Antonio Independent School District v. Rodriguez*, 411 U.S. 1 (1973).

[2] Florida Statutes, sec. 236.012, art. 1.

[3] Florida Constitution, art. 10, sec. 1.

[4] Florida Statutes, sec. 231.2905.

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Sarah L. Mendonça was born in Wisconsin but received her entire public school education in Coral Springs, Florida. In 1996, she received a Bachelor of Arts degree with high honors from the University of Florida, where she studied political science and also earned a certificate in international relations. After completing a year-long internship with the Education Appropriations Committee of the Florida House of Representatives following her undergraduate study, she returned to the University of Florida in 1997 as an Albert P. Murphree Presidential Fellow and began pursuing a Doctor of Philosophy degree in educational leadership, policy, and foundations. She also completed the requirements for a minor in public policy within her doctoral program of study. She has presented her research at conferences of the American Education Finance Association and has co-authored several publications in the area of education finance. Her long-term career plans include working in education policy analysis and also serving as an educator in various capacities and at various levels.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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